MECHANICAL LEGEND

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
AWT	AVERAGE WATER TEMPERATURE
BTUH	BRITISH THERMAL UNITS PER HOUR
CAF	COMBUSTION AIR FAN
CFC	CABINET FAN COIL
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CHW	CHILLED WATER
CMU	CONCRETE MASONRY UNIT
CRD	CEILING RADIATION DAMPER
CW	COLD WATER
DCV	DEMAND CONTROLLED VENTILATION
DDC	DIRECT DIGITAL CONTROL
DHW	DOMESTIC HOT WATER
DT	DELTA T
DU	DWELLING UNIT
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EMS	ENERGY MANAGEMENT SYSTEM
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
EX	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
FA	FREE AREA
FC	FAN COIL
FD	FLOOR DRAIN
FG	FIBERGLASS
FPC	FIRE PROTECTION CONTRACTOR
FPI	FINS PER INCH
FT	FEET
GAL	GALLONS
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
GVSM	GALVANIZED SHEET METAL
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
IFP	INTELLIGENT FIELD PANEL
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAU	MAKEUP AIR UNIT
MC	MECHANICAL CONTRACTOR
NC	NORMALLY CLOSED
NEZV	NON-ELECTRIC ZONE VALVE
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OBD	OPPOSED BLADE DAMPER
PC	PLUMBING CONTRACTOR
PROVIDE	SUPPLY AND INSTALL
PRV	PRESSURE REDUCING VALVE
RA	RETURN AIR
RC	ROOFING CONTRACTOR
RCP	REFLECTED CEILING PLAN
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SM	GALVANIZED SHEET METAL
SS	STAINLESS STEEL
T&P	TEMPERATURE & PRESSURE
TV	TEMPERING VALVE
TYP	TYPICAL
UH	UNIT HEATER
UOS	UNLESS OTHERWISE SPECIFIED
UV	UNIT VENTILATOR
VFD	VARIABLE FREQUENCY DRIVE
⊗	CONNECT TO EXISTING
(A)	AQUASTAT
(T)	THERMOSTAT
(S)	TEMPERATURE SENSOR
(SP)	FAN SPEED CONTROLLER
(HL)	HIGH LIMIT SENSOR
(H)	HUMIDISTAT
(P)	PRESSURE SENSOR
(CO)	CARBON MONOXIDE SENSOR
(CO2)	CARBON DIOXIDE SENSOR
(SD)	SMOKE DETECTOR
F	FLOW METER
(OC)	OCCUPANCY SENSOR
(UC)	UNDERCUT DOOR
T	VOLTAGE TRANSFORMER (120V/24V)
△	REVISION TRIANGLE

SYMBOLS

- NEW WORK (BOLD LINE)
- EXISTING WORK (LIGHT OR SHADED LINE)
- EQUIPMENT TAG (SEE SCHEDULE) DOES NOT REQUIRE ELECTRICAL
- EQUIPMENT TAG (SEE SCHEDULE) REQUIRES ELECTRICAL POWER
- A-CFM — DIFFUSER TAG
- 12x12 — SIZE SHOWN IS INTERIOR CLEAR DIMENSION. WHERE LINER IS CALLED FOR, INCREASE TO ACCOMMODATE.
- 10"ø — FLEXDUCT, 4 FT MAX LENGTH
- SUPPLY / RETURN/EXHAUST — DUCT DOWN
- DUCT UP
- ROOF-MOUNTED FAN
- ROOF MOUNTED EQUIPMENT
- SIDEWALL SUPPLY DIFFUSER
- SIDEWALL RETURN GRILLE
- CEILING SUPPLY DIFFUSER (4-WAY)
- RETURN/EXHAUST GRILLE
- VD — VOLUME DAMPER
- SD — SPLITTER DAMPER
- FD — FIRE DAMPER
- CRD — CEILING RADIATION DAMPER
- SFD — COMBINATION SMOKE & FIRE DAMPER
- AR — AUTOMATIC AIR FLOW REGULATOR
- CD — CAPE BACKDRAFT DAMPER
- MOTORIZED DAMPER
- ELECTRIC HEATER
- EXTERIOR LOUVER & PLENUM
- AIR SEPARATOR
- BASE MOUNTED PUMP
- CIRCULATOR/PUMP
- UV — UNIT VENTILATOR
- UH — UNIT HEATER
- HYDRONIC COIL
- FAN
- BARE FINTUBE ELEMENT
- RADIATOR
- BASEBOARD
- CAST IRON RADIATOR
- EQUIPMENT

- —HCS— COMBINATION HOT & CHILLED WATER SUPPLY PIPING
- —HCR— COMBINATION HOT & CHILLED WATER RETURN PIPING
- —HWS— HOT WATER SUPPLY PIPING
- —HWR— HOT WATER RETURN PIPING
- —CHWS— CHILLED WATER SUPPLY PIPING
- —CHWR— CHILLED WATER RETURN PIPING
- —CDS— CONDENSER WATER SUPPLY PIPING
- —CDR— CONDENSER WATER RETURN PIPING
- —RL— REFRIGERANT LIQUID LINE
- —RS— REFRIGERANT SUCTION LINE
- —C— CONDENSATE DRAIN PIPING
- PIPE ANCHOR
- PIPE GUIDE
- FLEX CONNECTOR
- DROP, PIPE DOWN
- RISER, PIPE UP
- AIR VENT W/ ISOLATION
- COIN VENT
- PRESSURE GAUGE
- THERMOMETER AND WELL
- TEMP AND/OR PRESSURE RELIEF VALVE
- VACUUM BREAKER
- HOSE BIBB W/ BRASS CAP & CHAIN
- BALL VALVE WITH HOSE THREAD, BRASS CAP AND CHAIN
- STRAINER WITH BALL VALVE W/ 3/4" HOSE CONNECTION, BRASS CAP AND CHAIN
- PP — PeTe's PLUG 3" LONG
- PRESSURE REDUCING VALVE
- FLANGE
- UNION
- CHECK VALVE (SPRING)
- BALL VALVE
- BALANCING VALVE
- PRESSURE DIFFERENTIAL BYPASS
- PNEUMATIC 2-WAY VALVE
- MOTORIZED 4-WAY VALVE
- MOTORIZED 3-WAY VALVE
- MANUAL 3-WAY VALVE
- MOTORIZED 2-WAY VALVE
- COMBINATION VALVE
- NEZV — NON-ELECTRIC ZONE VALVE

GENERAL MECHANICAL NOTES:

1. GENERAL CONDITIONS & SPECIFICATIONS: THE GENERAL CONDITIONS, AND SPECIFICATIONS ARE PART OF THIS WORK. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND BE FAMILIAR WITH THESE CONDITIONS & SPECIFICATIONS.
2. CODES AND ORDINANCES: INSTALLATION OF THE SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NATIONAL MECHANICAL CODE, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES.
3. REQUIREMENTS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES AND CERTIFICATES.
4. DESIGN: EQUIPMENT AND ACCESSORIES NOT SPECIFICALLY DESCRIBED OR IDENTIFIED BY MANUFACTURER'S CATALOG NUMBERS SHALL BE DESIGNED IN CONFORMITY WITH ASME, IEEE, S.M.A.C.N.A. DESIGN MANUAL OR OTHER APPLICABLE TECHNICAL STANDARDS, SUITABLE FOR MAXIMUM REQUIRED WORKING PRESSURE AND SHALL HAVE NEAT AND FINISHED APPEARANCE.
5. INSTALLATION: ERECT EQUIPMENT IN NEAT AND WORKMANLIKE MANNER; INSTALL SO THAT CONNECTING AND DISCONNECTING OF PIPES, EQUIPMENT AND ACCESSORIES CAN BE MADE READILY AND SO THAT ALL PARTS ARE EASILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS & REQUIREMENTS AND THE BEST STANDARD PRACTICE FOR THIS TYPE OF WORK.
6. BEST PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY FITTING, CONNECTION, OR APPLIANCE. THIS CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.
7. EQUIPMENT LOCATION: THE M.C. SHALL VERIFY THE LOCATIONS AND MOUNTING HEIGHTS OF ALL EQUIPMENT AND MATERIALS, AND THE EXACT ROUTING OF ALL PIPES, WITH THE OWNER'S REPRESENTATIVE IN THE FIELD, PRIOR TO COMMENCING ANY WORK. ANY CONFLICTS WITH LOCATIONS, OR PROBLEMS ENCOUNTERED WITH ROUTING, SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
8. MATERIALS: ALL MATERIALS, FIXTURES AND EQUIPMENT SHALL BE NEW WITHOUT IMPERFECTIONS AND SHALL BE DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL. WHEREVER POSSIBLE, ALL TRIM, ACCESSORIES AND PARTS SHALL BE OF THE SAME MANUFACTURER AS THE RELATED EQUIPMENT AND FIXTURES.
9. DUCTWORK: ALL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH S.M.A.C.N.A. STANDARDS.
10. PLUMBING: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH COMMONWEALTH OF MASSACHUSETTS FUEL GAS AND PLUMBING CODE (248 CMR, NFPA 54).
11. ELECTRICAL: ALL ELECTRICAL SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL LOCAL REQUIREMENTS. COORDINATE ELECTRICAL CHARACTERISTICS FOR ALL EQUIPMENT WITH E.C. BEFORE ORDERING EQUIPMENT.
12. CONTROLS: PERFORM A FUNCTIONAL CHECK OF ALL CONTROLS & SYSTEMS THAT WILL REMAIN & ARE AFFECTED BY THIS WORK. REPORT ANY DEFICIENCIES IN WRITING.
13. OBJECTIONABLE NOISE AND VIBRATIONS: MECHANICAL AND ELECTRICAL EQUIPMENT SHALL OPERATE WITHOUT OBJECTIONABLE NOISE AND VIBRATION, AS DETERMINED BY THE ENGINEER. CONTRACTOR SHALL SUPPLY ALL NECESSARY HARDWARE FOR NOISE AND VIBRATION ISOLATION.
14. GENERAL COORDINATION: EXAMINE ALL DRAWINGS AND OTHER SECTIONS OF THE SPECIFICATIONS FOR REQUIREMENTS WHICH AFFECT THE WORK OF THIS SECTION. COORDINATE WORK WITH THAT OF OTHER TRADES AFFECTING, OR AFFECTED BY, WORK OF THIS SECTION. COOPERATE WITH OTHER TRADES TO ENSURE THE STEADY PROGRESS OF THE WORK.
15. PROTECTION OF EQUIPMENT AND MATERIALS: RESPONSIBILITY FOR CARE AND PROTECTION OF ALL MATERIALS AND MECHANICAL WORK RESTS WITH THIS CONTRACTOR AT ALL TIMES UNTIL IT HAS BEEN APPROVED.
16. GUARANTEE: ALL NEW COMPONENTS OF THE INSTALLATION SHALL BE GUARANTEED IN WRITING BY THIS CONTRACTOR TO BE FREE FROM DEFECTS OF MANUFACTURE AND INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF WRITTEN ACCEPTANCE BY THE ENGINEER. ANY DEFECTS FOUND SHALL BE REPAIRED BY THE MECHANICAL CONTRACTOR AT THEIR OWN EXPENSE.
17. NOTIFICATION: THE M.C. SHALL NOTIFY THE ENGINEER UPON: (1) COMPLETION OF ALL ROUGH PIPING AND DUCT WORK, BEFORE CLOSURE OF ANY TRENCHES, OPEN WALL CAVITIES OR CHASES; THIS CONTRACTOR MUST SCHEDULE THE ENGINEER'S VISIT NO LESS THAN 8 WORKING DAYS IN ADVANCE AND BEFORE A) ANY INSULATION, PIPING, WIRING, OR INSTALLED SYSTEMS AND B) ANY INSPECTORS' SCHEDULED ROUGH INSPECTIONS. (2) UPON "SUBSTANTIAL COMPLETION" OF ALL SYSTEMS INCLUDING OPERATIONAL SPACE CONDITIONING. AFTER "SUBSTANTIAL COMPLETION", THE ENGINEER WILL PREPARE A PUNCH LIST OF ITEMS TO BE CORRECTED. THE M.C. SHALL CORRECT ANY DEFICIENCIES FOUND PROMPTLY, AT HIS/HER OWN EXPENSE. PROVIDE ADVANCE NOTICE OF AT LEAST ONE WEEK TO SCHEDULE.
18. FINAL COMPLETION: THE WORK SHALL NOT BE CONSIDERED COMPLETE UNTIL THE PUNCH LIST IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND ALL FINAL INSPECTIONS HAVE BEEN COMPLETED.
19. THE REQUIREMENTS OF THE STRETCH CODE HAVE BEEN ADOPTED BY THE LOCAL AUTHORITY, APPENDIX 115 AA, 780CMR. ALL WORK PERFORMED MUST CONFORM TO THESE REQUIREMENTS.

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DATE: 04/10/2019
NUMBER: 1805.00
PROJECT: ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWN BY:
CHECKED BY: GAC
DRAWING: MECHANICAL LEGEND & NOTES
DRAWING NUMBER: M001

COOLING TOWER SCHEDULE

DWG ID	MANUFACTURER	MODEL NO.	CAPACITY (TONS)	GPM	WATER EWT (°F)	WATER LWT (°F)	WATER WET-BULB (°F)	ASHRAE 90.1 PERFORMANCE GPM/HP	AIRFLOW (CFM)	FAN (HP)	ELECTRICAL DATA V/PH	OPERATING WEIGHT (LBS)	COMMENTS
CT-1	MARLEY	MD5006KAC1L	134	324	95	85	78	77.8	30,270	5.0	208/3/60	4,949	[1][2][3][4][5][6]

[1] COORDINATE ALL ELECTRICAL CHARACTERISTICS W/EC PRIOR TO ORDERING.
[2] PROVIDE FACTORY MOUNTED DISCONNECT AND TOWER FAN VFD.
[3] PROVIDE SERIES 300 STAINLESS STEEL DISTRIBUTION BASIN, DISTRIBUTION BASIN COVERS AND COLLECTION BASIN.
[4] PROVIDE PREMIUM EFFICIENCY MOTOR.
[5] PROVIDE SUMP HIGH WATER LEVEL AND SUMP LOW WATER LEVEL, SUMP LOW WATER MAKE-UP FLOAT SWITCHES. PROVIDE 1" AUTOMATIC FILL VALVE.
[6] PROVIDE SERVICE LADDER

HEATING MECHANICAL EQUIPMENT SCHEDULE

REQUIRES ELECTRICAL — DOES NOT REQUIRE ELECTRICAL [1]

DWG ID	EQUIPMENT	MANUFACTURER	MODEL NUMBER	PERFORMANCE/REMARKS	ELECTRICAL DATA
B-1	CONDENSING BOILER	LOCHINVAR	FTX850	97.0% EFFICIENCY, 850 MBH INPUT, 825 MBH OUTPUT, GAS FIRED CONDENSING BOILER, 50 PSI RELIEF VALVE [3]	120/1/60
B-2	CONDENSING BOILER	LOCHINVAR	FTX850	97.0% EFFICIENCY, 850 MBH INPUT, 825 MBH OUTPUT, GAS FIRED CONDENSING BOILER, 50 PSI RELIEF VALVE [3]	120/1/60
B-3	CONDENSING BOILER	LOCHINVAR	FTX850	97.0% EFFICIENCY, 850 MBH INPUT, 825 MBH OUTPUT, GAS FIRED CONDENSING BOILER, 50 PSI RELIEF VALVE [3]	120/1/60
DHW-1	INDIRECT FIRED DHW TANK	VELOCITY BOILER WORKS	MS119	119 GALLON STAINLESS STEEL, 384 RECOVERY PER D.O.E.	N/A
AS-1	AIR SEPARATOR	SPIROTHERM	VSR-400	4" MICROBUBBLE SEPARATOR, 240 GPM MAX	N/A
SM-1	STRAINER MAGNETIC	CALEFFI	546510AM	4" MAGNETIC STRAINER	N/A
VFD-1	VARIABLE SPEED DRIVE	AAB	ACH550	WITH BYPASS, 5HP, SERVES PUMP P-1 [2]	208/3/60
VFD-2	VARIABLE SPEED DRIVE	AAB	ACH550	WITH BYPASS, 5HP, SERVES PUMP P-2 [2]	208/3/60
VFD-5	VARIABLE SPEED DRIVE	AAB	ACH550	WITH BYPASS, 5HP, SERVES MAU-1 [2]	208/3/60
CSF-1	CHEMICAL SHOT FEEDER	NEPTUNE	FTF-5HP	7.5 GALLONS, STAINLESS STEEL BASKET, 20-MICRON RING-TOP BAG [4]	N/A
EX-1	EXPANSION TANK	TACO	CA140	37 GALLON VOLUME, 37 GALLON ACCEPTANCE VOLUME, FULL ACCEPTANCE, ASME RATED	N/A
NT-1	NEUTRALIZING TANK	JJM BOILER WORKS	NB-6-P	6,000 MBH, 48.0 GPH RATED. SELF-PRIMING PUMP, 60 FT HEAD. [5]	120/1/60
UH-1	HYDRONIC UNIT HEATER	STERLING	HS-36	23,500 MBH, 3.0 GPM, 480 CFM	25W, 120/1/60
HX-1	HEAT EXCHANGER	TACO	TB80x30	184,000 BTU/Hr, BRAZED PLATE, WATER SIDE: 18 GPM, GLYCOL SIDE: 19 GPM	N/A
AS-2	AIR SEPARATOR	SPIROTHERM	VJR-125	1-1/2" MICROBUBBLE SEPARATOR, 30 GPM MAX	N/A

[1] COORDINATE ALL ELECTRICAL CHARACTERISTICS W/ EC BEFORE ORDERING EQUIPMENT.
[2] PROVIDE PRESSURE DIFFERENTIAL CONTROLS, SENSORS, AND DDC CONTROLS.
[3] PROVIDE MANUFACTURER'S DIGITAL CONTROLS AND REQUIRED INTERFACE TO ALLOW MONITORING AND ALARM BY THE CENTRAL DDC SYSTEM USING BACNET PROTOCOL.
[4] PROVIDE FILTER FEEDER WITH 4 EXTRA 20 MICRON RING-TOP BAG. STORE EXTRA IN BOILER ROOM.
[5] PROVIDE 2 EXTRA 40 LB NEUTRALIZING MEDIA BAGS. STORE IN BOILER ROOM.

COOLING MECHANICAL ROOM EQUIPMENT SCHEDULE

REQUIRES ELECTRICAL — DOES NOT REQUIRE ELECTRICAL [1]

DWG ID	EQUIPMENT	MANUFACTURER	MODEL NUMBER	PERFORMANCE/REMARKS	ELECTRICAL DATA
VFD-3	VARIABLE SPEED DRIVE	AAB	ACH550	WITH BYPASS, 15HP, SERVES PUMP P-3 [2]	208/3/60
VFD-4	VARIABLE SPEED DRIVE	AAB	ACH550	WITH BYPASS, 15HP, SERVES PUMP P-4 [2]	208/3/60
ACF-1	AUTOMATIC CHEMICAL FEED	GE	REDIFEED RF-500	SOLID CHEMICAL FEED CONTROL PACKAGE [3][4]	120/1/60
WF-1	WATER FILTER	TEKLEEN	MTF4-L	4" INLET/OUTLET FLANGES, 2" FLUSH OUTLET, 500 GPM MAX, FULL FLOW FILTRATION, 31"X11"X15", 120 LBS [5]	120/1/60

[1] COORDINATE ALL ELECTRICAL CHARACTERISTICS W/ EC BEFORE ORDERING EQUIPMENT.
[2] PROVIDE PRESSURE DIFFERENTIAL CONTROLS, SENSORS, AND DDC CONTROLS.
[3] SYSTEM TO INCLUDE CHEMICAL FEED PUMPS (TYP-2), COUPON RACK, CONDUCTIVITY/BIOCIDE CONTROLLER. SEE SPECIFICATIONS FOR MORE DETAILS AND CHEMICALS TO BE INCLUDED.
[4] PROVIDE ALL CHEMICALS REQUIRED TO TREAT THE COOLING TOWER. SEE SPECIFICATIONS FOR DETAILS
[5] PROVIDE TEKLEEN ELECTRONIC BACKWASH CONTROLLER (MODEL GB6-LPF) AND BLOW DOWN TANK, SEE DETAIL 3 ON M203

PUMP SCHEDULE

P — [1][3]

DWG ID	SERVICE	MANUFACTURER	MODEL NO.	GPM	HEAD (FT)	HP	RPM	V/ø/Hz	PERFORMANCE/REMARKS
BP-1	BOILER INJECTION PUMP	GRUNDFOS	MAGNA3 40-80F	55	8	1/3	1,760	120/1/60	VARIABLE SPEED, ECM
BP-2	BOILER INJECTION PUMP	GRUNDFOS	MAGNA3 40-80F	55	8	1/3	1,760	120/1/60	VARIABLE SPEED, ECM
BP-3	BOILER INJECTION PUMP	GRUNDFOS	MAGNA3 40-80F	55	8	1/3	1,760	120/1/60	VARIABLE SPEED, ECM
P-1	SPACE HEATING PUMP	TACO	FI2510C	160	50	5.0	1,760	208/3/60	7.0" IMP. DIAMETER, 72% EFF. [2]
P-2	SPACE HEATING PUMP	TACO	FI2510C	160	50	5.0	1,760	208/3/60	7.0" IMP. DIAMETER, 72% EFF. [2]
P-3	CONDENSER LOOP PUMP	TACO	FI3011	300	120	15.0	1,760	208/3/60	11.1" IMP. DIAMETER, 71% EFF.[2]
P-4	CONDENSER LOOP PUMP	TACO	FI3011	300	120	15.0	1,760	208/3/60	11.1" IMP. DIAMETER, 71% EFF.[2]
P-5	DHW TANK PUMP	GRUNDFOS	UPS 40-80/4	15	10	1/3	1,760	120/1/60	–
P-6	DHW TANK PUMP	GRUNDFOS	UPS 40-80/4	15	10	1/3	1,760	120/1/60	–
P-7	HEATING COIL HC-1	GRUNDFOS	UP 15-58FC	10.0	5	1/25	1,760	120/1/60	3-SPEED
P-8	HEATING COIL HC-2	GRUNDFOS	UP 26-64F	20.0	10	1/12	1,760	120/1/60	–
P-9	HEATING COIL HC-3	GRUNDFOS	UP 15-58FC	9.0	5	1/25	1,760	120/1/60	3-SPEED
P-10	HEATING COIL HC-4	GRUNDFOS	UP 15-58FC	5.0	5	1/25	1,760	120/1/60	3-SPEED
P-11	HEATING COIL HC-13	GRUNDFOS	UP 15-58FC	10.0	5	1/25	1,760	120/1/60	3-SPEED
P-12	MAU-1	GRUNDFOS	UPS 40-80/2	19.0	25	3/4	1,760	120/1/60	3-SPEED

[1] CONFIRM ALL ELECTRICAL CHARACTERISTICS W/EC BEFORE ORDERING UNITS.
[2] PROVIDE DDC PUMP CONTROL & VFD CONTROL.
[3] PROVIDE PREMIUM EFFICIENCY MOTORS SUITABLE FOR UTILITY REBATES.

HYDRONIC BASEBOARD

– / X'-X" : TYPE / LENGTH OF ACTIVE FIN-TUBE ELEMENT. [1][2][3][4]

DWG ID	BTU/LN FT	MANUFACTURER	MODEL NO.	TUBE/ELEMENT	ENCLOSURE	REMARKS
X	–	–	–	–	SLOPE TOP SINGLE TIER	SALVAGE FROM DEMO OF PROPOSED KITCHEN [5]
A	530 BTUH (450 BTUH ACTUAL)	STERLING	JVA-C	32 FINS/FT 1" COPPER TUBE	FLAT TOP SINGLE TIER	5-5/8"H x 3-7/8"D 16 GAUGE 4 GPM [5]
B	640 BTUH (544 BTUH ACTUAL)	STERLING	SR-A-3	55 FINS/FT 3/4" COPPER TUBE	SLOPE TOP SINGLE TIER	9-13/16"H x 3-1/4"D 16 GAUGE 4 GPM [5]

[1] PROVIDE LENGTH OF ACTIVE FINNED TUBE ELEMENT AS INDICATED ON PLANS.
[2] PROVIDE BAKED ENAMEL FINISH, COORDINATE FINAL COLOR WITH OWNER
[3] DERATED OUTPUT FOR 70°F ENTERING AIR TEMPERATURE AT 170°F AVERAGE WATER TEMPERATURE. LESS "HEATING EFFECT FACTOR"
[4] PROVIDE ALL LENGTHS OF ENCLOSURE, ENDCAPS, AND SPLICE PLATES REQUIRED TO CONCEAL ALL FINTUBE ELEMENT, PIPING, VALVES, ETC.
[5] PROVIDE COIN VENTS FOR EACH SECTION OF BASEBOARD.

AIR CONDITIONING UNIT SCHEDULE - WATER-TO-AIR

HV — [1][2][3][4][5][6][7]

DWG ID	MANUFACTURER	MODEL	CFM	COOLING COIL DATA E.S.P.	TONS	TC (MBH)	SC (MBH)	EAT	EWT	LWT	GPM	WPD	EER	ELECTRICAL DATA V/HZ/ø	MCA	MAX FUSE	REMARKS
HV-1	JOHNSON CONTROLS	CSV060B2M2AAAB0A	2,400	1.0	5.0	63.5	39.9	75	85	95	15.0	21.4	12.9	208/3/60	24.5	40	BACK DISCHARGE
HV-2	JOHNSON CONTROLS	CSV180B2M1VAAAB0A	4,800	1.0	15.0	175.7	97.9	75	85	95	30.0	12.5	13.9	208/3/60	60.7	80	BACK DISCHARGE
HV-3	JOHNSON CONTROLS	CSV096B2M1VAAAB0A	3,200	0.75	8.0	97.5	58.5	75	85	95	24.0	25.8	15.0	208/3/60	34.0	45	–
HV-4	JOHNSON CONTROLS	RLLH095EL30ACBGNA3SSB	2,600	1.0	8.0	90.7	53.6	75	85	95	18.0	8.7	15.6	208/3/60	36.7	50	DISABLE HEATING SIDE
HV-5	JOHNSON CONTROLS	RKSV036TL300CBGNA8D60SSD	1,200	0.50	3.0	34.5	21.1	75	85	95	7.0	4.0	17.5	208/3/60	13.9	20	DISABLE HEATING SIDE
HV-6	JOHNSON CONTROLS	CSV120B2M1VAAAB0A	4,000	0.70	10.0	128.6	76.9	75	85	95	25.0	19.9	14.0	208/3/60	41.8	50	–
HV-7	JOHNSON CONTROLS	CSV120B2M1VAAAB0A	4,000	0.70	10.0	128.6	76.9	75	85	95	25.0	19.9	14.0	208/3/60	41.8	50	–
HV-13	JOHNSON CONTROLS	CSV096B2M1VAAAB0A	2,400	0.75	8.0	92.0	50.4	75	85	95	16.0	12.8	15.3	208/3/60	34.0	45	–

[1] CONFIRM ELECTRICAL CHARACTERISTICS WITH EC BEFORE ORDERING EQUIPMENT
[2] PROVIDE 2-WAY MODULATING CONTROL VALVE. PROVIDE STRAINER, BALANCING VALVE, SHUTOFF VALVE AND PT PORTS.
[3] PROVIDE DDC INTERFACE & CONTROL. SEE SPECIFICATION FOR DETAILS.
[4] PROVIDE ELECTRICALLY COMMUTATED MOTOR (ECM)
[5] PROVIDE 2" FILTER RACK AND MERV 7 AIR FILTERS. PROVIDE 1 SET OF FILTERS AT COMPLETION OF PROJECT.
[6] PROVIDE 1" GALVANIZED SECONDARY DRAIN PAN WITH WATER SENSOR (RECTOR SEAL MODEL: AG-1100+) AND AUDIBLE ALARM (RECTORSEAL MODEL: AG-9100).
[7] PROVIDE HOT GAS BYPASS.

HYDRONIC COIL SCHEDULE

HC — [1][2][3]

DWG ID	UNIT SERVED	MANUFACTURER	MODEL NO.	COIL DATA DIMENSIONS (W" x H")	ROWS	FPI	WATER SIDE DATA MBH	EWT	LWT	GPM	WPD	AIR SIDE DATA CFM	PD	EAT	LAT	REMARKS
HC-1	HV-1	JOHNSON CONTROLS	BDW	30.0 x 24.0	2	8	96.9	180	160	10.0	0.8	2,400	0.16	72	109	–
HC-2	HV-2	JOHNSON CONTROLS	BDW	50.0 x 26.5	2	8	188.9	180	160	20.0	9.9	4,800	0.16	72	108	–
HC-3	HV-3	JOHNSON CONTROLS	BDW	38.0 x 24.0	1	12	97.1	180	160	9.0	2.7	3,200	0.10	72	97	–
HC-4	HV-4	JOHNSON CONTROLS	BDW	30.0 x 24.0	1	8	45.3	180	160	5.0	0.1	2,400	0.07	72	90	–
HC-13	HV-13	JOHNSON CONTROLS	BDW	30.0 x 24.0	2	8	96.9	180	160	10.0	0.8	2,400	0.16	72	109	–

[1] PROVIDE BALANCING VALVE W/ TEST PORTS, SEE PIPING DETAIL 4/M202
[2] PROVIDE 3-WAY CONTROL VALVE UNLESS NOTED OTHERWISE.
[3] PROVIDE DDC CONTROL.

CABINET UNIT HEATER SCHEDULE

CUH — [1][2][3][4]

DWG ID	SERVICE	MANUFACTURER	MODEL NO.	HEATING COIL DATA CFM	MBH	GPM	WPD (FT)	DIMENSIONS L	H	D	REMARKS	ELECTRICAL DATA
CUH-1	VESTIBULE	BEACON MORRIS	RWI-1130-02	185	8.0	0.8	0.06	35	25	9.5	FRONT DISCHARGE AND RETURN, RECESSED WALL MOUNT, INVERTED FLOW	1/15 HP, 120/1/60
CUH-2	LOBBY	BEACON MORRIS	RWI-1130-02	185	8.0	0.8	0.06	35	25	9.5	FRONT DISCHARGE AND RETURN, RECESSED WALL MOUNT, INVERTED FLOW	1/15 HP, 120/1/60
CUH-3	1ST FLOOR BATH	BEACON MORRIS	WI-1100-02	185	8.0	0.8	0.06	35	25	9.5	BOTTOM DISCHARGE, FRONT RETURN, WALL MOUNT, INVERTED FLOW	1/15 HP, 120/1/60
CUH-4	LOBBY	BEACON MORRIS	FI-1050-02	185	15.0	1.5	0.15	35	25	9.5	BOTTOM DISCHARGE, FRONT RETURN, FLOOR MOUNT, INVERTED FLOW	1/15 HP, 120/1/60

[1] HEATING PERFORMANCE BASED ON 160°F EWT AND 30°F DROP, 70°F EAT
[2] PROVIDE BALANCING VALVE W/ TEST PORTS.
[3] PROVIDE 2-WAY CONTROL VALVE
[4] ECM MOTOR, 3 SPEED

FAN SCHEDULE

EF — [1]

NUMBER	SERVICE	TYPE	DRIVE	CFM	ESP	FAN RPM	ELECTRICAL DATA HP	V/Ph/Hz	MANUFACTURER	MODEL	REMARKS	SONES	WEIGHT
EF-1	BATHROOM EXHAUST	CEILING	DIRECT	80	0.1	811	5.3 W	120/1/60	PANASONIC	FV-0511VKL2	LED LIGHT	<0.3	–
EF-2	MECHANICAL ROOM EXHAUST	INLINE	DIRECT	200	0.5	1,000	61 W	120/1/60	GREENHECK	CSP-A250	– [2]	3.0	23
EF-3	KITCHEN EXHAUST	WALL MOUNTED	DIRECT	2,800	1.00	1,318	2.0	208/1/60	GREENHECK	CUE-161-VG	ECM [3]	16.9	90
EF-4	BATHROOM EXHAUST	INLINE	DIRECT	200	0.4	1,260	53 W	120/1/60	PANASONIC	FV-20NLF	–	–	–
EF-5	BATHROOM EXHAUST	INLINE	DIRECT	350	0.5	1,150	120 W	120/1/60	PANASONIC	FV-40NLF1	–	–	–
EF-6	DISHWASHER EXHAUST	INLINE	BELT	500	0.75	1,725	1/4	120/1/60	GREENHECK	TCB-1-09-4	ALUMINUM	10.0	55
SF-1	SUPPLY FAN	INLINE	DIRECT	280	0.75	1,270	1/3	120/1/60	GREENHECK	CSP-A700-VG	VARIABLE SPEED	2.0	39
SF-2	SUPPLY FAN	INLINE	DIRECT	280	0.75	1,270	1/3	120/1/60	GREENHECK	CSP-A700-VG	VARIABLE SPEED	2.0	39

[1] COORDINATE VOLTAGE AND HORSEPOWER WITH EC PRIOR TO ORDERING
[2] PROVIDE SOLID STATE SPEED CONTROL. MOUNTED TO SIDE OF FAN.
[3] PROVIDE GREASE PAN KIT & TRAP, BIRDSCREEN, ECM, VARIABLE SPEED

MAKE UP AIR UNIT SCHEDULE

MAU — [1][2][3][4][5][6]

UNIT ID	MANJFACTURER	MODEL	SUPPLY FAN CFM	ESP (IN. W.C.)	RPM	HP	OUTSIDE AIR (CFM)	HOT WATER HEAT MBH	EAT (°F)	LAT (°F)	ELECTRIC V/ø/Hz/MCA	REMARKS
MAU-1	YORK	XTI-30x57	2,250	0.75	3,244	3.0	2,250	170	9	70	208/3/60/9.9	18 GPM, COIL: 1 ROW, 14 FPI

[1] COORDINATE ALL ELECTRICAL CHARACTERISTICS W/EC BEFORE ORDERING UNITS
[2] PROVIDE 2" MERV 8 FILTER AND SPARE PER SPEC
[3] PROVIDE MODULATING 2-WAY VALVE, DISCHARGE AIR TEMPERATURE CONTROL, DDC CONTROL
[4] PROVIDE PREMIUM EFFICIENCY MOTOR
[5] HEATING PERFORMANCE BASED ON 170°F EWT, 20°F DROP, 40% GLYCOL
[6] PROVIDE VFD

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DRAWING MECHANICAL SCHEDULES
DRAWING NUMBER M002

CEILING DIFFUSER SCHEDULE [1][2][3][4]

DWG ID	TYPE	CFM RANGE	SIZE WxH	MAX NC	MANUFACTURER	MOD. No.	REMARKS
A1-CFM	CEILING DIFFUSER	1 - 100	6x6	25	HART & COOLEY	SRE	STEEL, 4-WAY THROW, SR-7 OPPOSED BLADE DAMPER
A2-CFM	CEILING DIFFUSER	101 - 250	9x9	25	HART & COOLEY	SRE	STEEL, 4-WAY THROW, SR-7 OPPOSED BLADE DAMPER
A3-CFM	CEILING DIFFUSER	251 - 400	12x12	25	HART & COOLEY	SRE	STEEL, 4-WAY THROW, SR-7 OPPOSED BLADE DAMPER
A4-CFM	CEILING DIFFUSER	401 - 650	15x15	25	HART & COOLEY	SRE	STEEL, 4-WAY THROW, SR-7 OPPOSED BLADE DAMPER
A5-CFM	CEILING DIFFUSER	651 - 900	18x18	25	HART & COOLEY	SRE	STEEL, 4-WAY THROW, SR-7 OPPOSED BLADE DAMPER
A6-CFM	CEILING DIFFUSER	901 - 1,100	21x21	25	HART & COOLEY	SRE	STEEL, 4-WAY THROW, SR-7 OPPOSED BLADE DAMPER

[1] ALL DIFFUSERS & GRILLES SHALL INCLUDE PAINTABLE FINISH AND OPPOSED BLADE DAMPER.
[2] COORDINATE BORDER TYPE FOR PLASTER CEILINGS W/ GC.
[3] DIFFUSERS ARE 4-WAY THROW UNLESS NOTED OTHERWISE ON PLAN.
[4] PROVIDE CEILING FIRE DAMPER AT DIFFUSER WHERE DIFFUSER PENETRATES FIRE RATING. SEE PLANS FOR LOCATIONS.

CEILING RETURN GRILLE SCHEDULE [1][2][3]

DWG ID	TYPE	CFM RANGE	SIZE WxH	MAX NC	MANUFACTURER	MOD. No.	REMARKS
AA1-CFM	RETURN	1 - 50	6x6	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE
AA2-CFM	RETURN	51 - 150	8x8	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE
AA3-CFM	RETURN	151 - 280	10x10	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE
AA4-CFM	RETURN	281 - 430	12x12	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE
AA5-CFM	RETURN	431 - 1,000	18x18	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE
AA6-CFM	RETURN	1,001 - 1,300	20x20	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE
AA7-CFM	RETURN	1,301 - 2,000	24x24	25	HART & COOLEY	RED5	ALUMINUM, EGG CRATE CORE, OBD, WHITE

[1] ALL DIFFUSERS & GRILLES SHALL INCLUDE OPPOSED BLADE DAMPER.
[2] COORDINATE OPENINGS AND BORDER TYPE WITH GC.
[3] PROVIDE CEILING FIRE DAMPER AT DIFFUSER WHERE DIFFUSER PENETRATES FIRE RATING. SEE PLANS FOR LOCATIONS.

SIDEWALL DIFFUSER SCHEDULE [1][2][3][4]

DWG ID	TYPE	CFM RANGE	SIZE WxH	MAX NC	MANUFACTURER	MOD. No.	REMARKS
X-CFM	SIDEWALL DIFFUSER	-	-	-	-	-	EXISTING TO REMAIN
B1-CFM	SIDEWALL DIFFUSER	1 - 120	8X6	25	HART & COOLEY	92VHV	DOUBLE DEFLECTION, OBD, WHITE
B2-CFM	SIDEWALL DIFFUSER	121 - 185	10X6	25	HART & COOLEY	92VHV	DOUBLE DEFLECTION, OBD, WHITE
B3-CFM	SIDEWALL DIFFUSER	186 - 230	12X6	25	HART & COOLEY	92VHV	DOUBLE DEFLECTION, OBD, WHITE
B4-CFM	SIDEWALL DIFFUSER	231 - 340	20X6	25	HART & COOLEY	92VHV	DOUBLE DEFLECTION, OBD, WHITE
B5-CFM	SIDEWALL DIFFUSER	341 - 460	24X6	25	HART & COOLEY	92VHV	DOUBLE DEFLECTION, OBD, WHITE
B6-CFM	SIDEWALL DIFFUSER	461 - 695	24X8	25	HART & COOLEY	92VHV	DOUBLE DEFLECTION, OBD, WHITE

[1] ALL DIFFUSERS SHALL INCLUDE OPPOSED BLADE DAMPER.
[2] COORDINATE OPENINGS AND BORDERS W/ GC.

SIDEWALL RETURN GRILLE SCHEDULE [1][2]

DWG ID	TYPE	CFM RANGE	SIZE WxH	MAX NC	MANUFACTURER	MOD. No.	REMARKS
BB1-CFM	RETURN	1 - 120	8X6	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB2-CFM	RETURN	121- 185	10X6	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB3-CFM	RETURN	186 - 230	12X6	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB4-CFM	RETURN	231 - 340	20X6	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB5-CFM	RETURN	341 - 460	24X6	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB6-CFM	RETURN	461 - 580	24X8	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB7-CFM	RETURN	950 - 1,650	24X20	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB8-CFM	RETURN	2,000 - 3,750	36X36	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB9-CFM	RETURN	3,750 - 7,500	48X48	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES
BB10-CFM	RETURN	780 - 1,575	30X18	25	HART & COOLEY	94A	STEEL, WHITE, 35' BLADES

[1] ALL DIFFUSERS SHALL INCLUDE OPPOSED BLADE DAMPER.
[2] COORDINATE OPENINGS AND BORDER TYPE WITH GC.

EXTERIOR TERMINATION SCHEDULE [1][2]

DWG ID	TYPE	SIZE (WxH)	MANUFACTURER	MOD. No.	REMARKS
DD1	MECHANICAL ROOM OUTSIDE AIR LOUVER	48x12	HART & COOLEY	445ZC	4" BLADES, ALUMINUM, BIRDSCREEN, 1.54 SQ. FT. FA
DD2	MECHANICAL ROOM EXHAUST LOUVER	18x12	HART & COOLEY	445ZC	4" BLADES, ALUMINUM, BIRDSCREEN, 0.53 SQ. FT. FA
DD3	KITCHEN MAKEUP AIR LOUVER	42x36	HART & COOLEY	445ZC	4" BLADES, ALUMINUM, BIRDSCREEN, 5.00 SQ. FT. FA
DD4	BATHROOM EXHAUST TERMINATION	8"ø	GREENHECK	WC-8	8"ø, ALUMINUM, BIRDSCREEN, BACKDRAFT DAMPER
DD5	BATHROOM EXHAUST TERMINATION	6"ø	GREENHECK	WC-6	6"ø, ALUMINUM, BIRDSCREEN, BACKDRAFT DAMPER

[1] SUPPLIED BY MC FOR INSTALLATION BY GC.
[2] COORDINATE STOCK COLOR SELECTION WITH ARCHITECT PRIOR TO ORDERING.

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04/10/2019

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DRAWING
MECHANICAL SCHEDULES

DRAWING NUMBER
M003

MECHANICAL DEMOLITION NOTES:

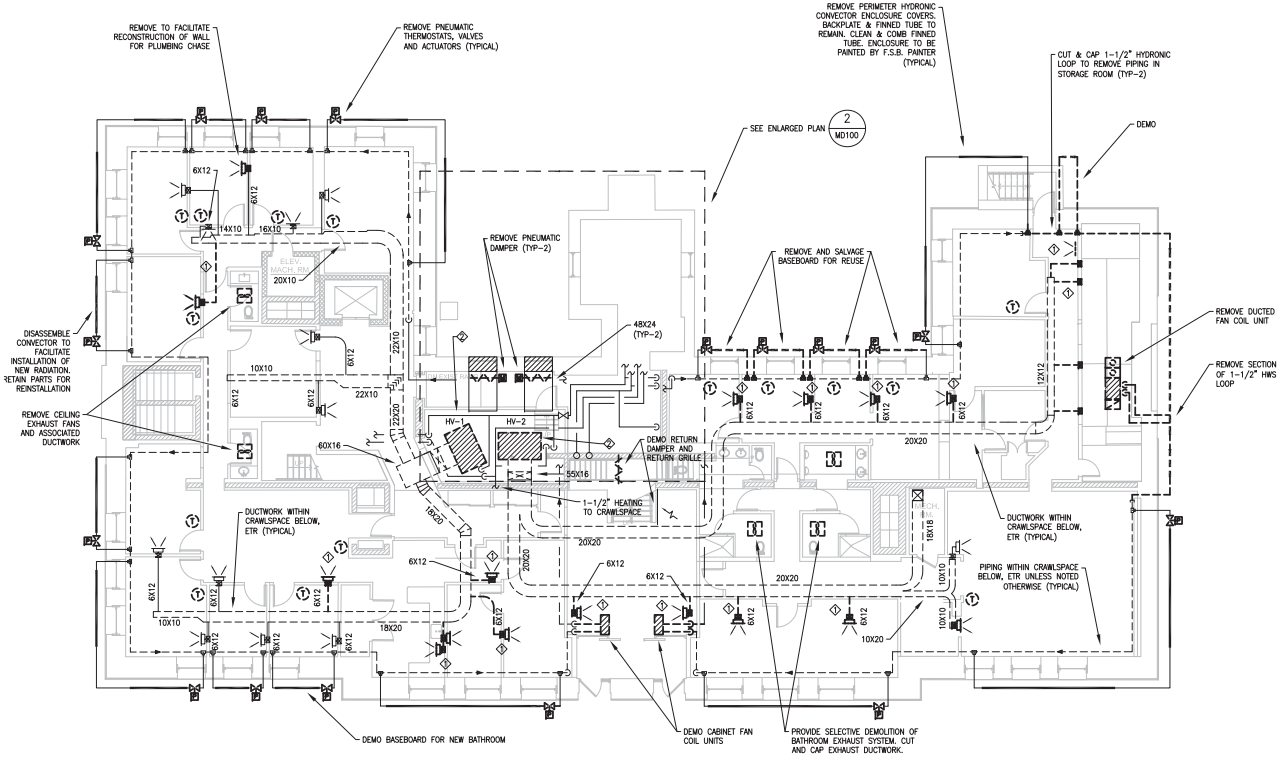
1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. MC SHALL CUT, CAP, & MAKE SAFE PIPE AND DUCT CONNECTIONS TO EQUIPMENT TO FACILITATE REMOVAL & DISPOSAL BY GC.
4. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SIT TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.
5. DEMO OF EXISTING COOLING TOWER & RELATED SYSTEM SHALL NOT BE DONE UNTIL AFTER THE COOLING SEASON ENDS.
6. REPLACEMENT OF HEATING SYSTEM SHALL BE UP AND OPERATING IN TIME FOR NEW HEATING SEASON IN NOVEMBER OF 2019.

DEMOLITION LEGEND

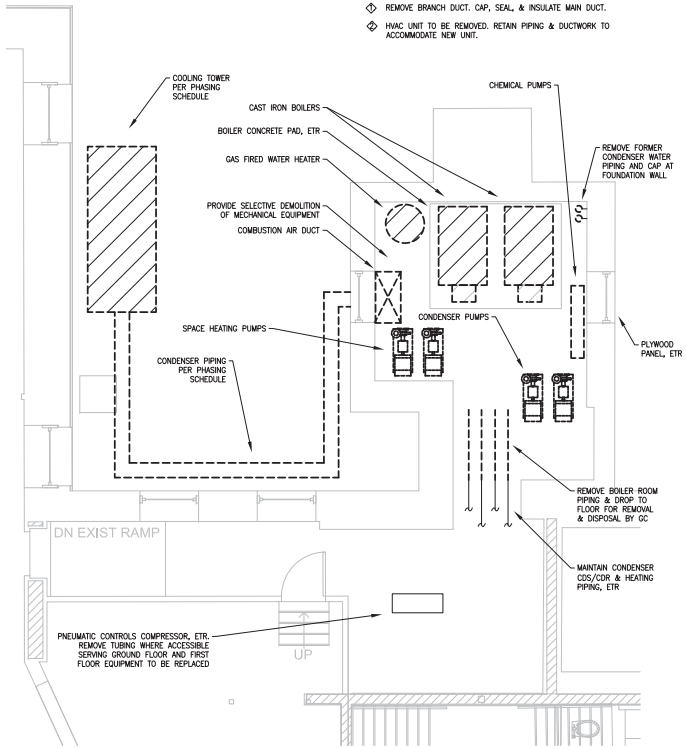
- DEMOLISH & DISPOSE
- EXISTING TO REMAIN (ETR)
- EXISTING TO REMAIN (BELOW FLOOR)

KEYED NOTES:

1. REMOVE BRANCH DUCT. CAP, SEAL, & INSULATE MAIN DUCT.
2. HVAC UNIT TO BE REMOVED. RETAIN PIPING & DUCTWORK TO ACCOMMODATE NEW UNIT.



1 MD100 GROUND FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 MD100 MECHANICAL ROOM ENLARGED MECHANICAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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DRAWING GROUND FLOOR MECHANICAL DEMOLITION PLAN

MECHANICAL DEMOLITION NOTES:

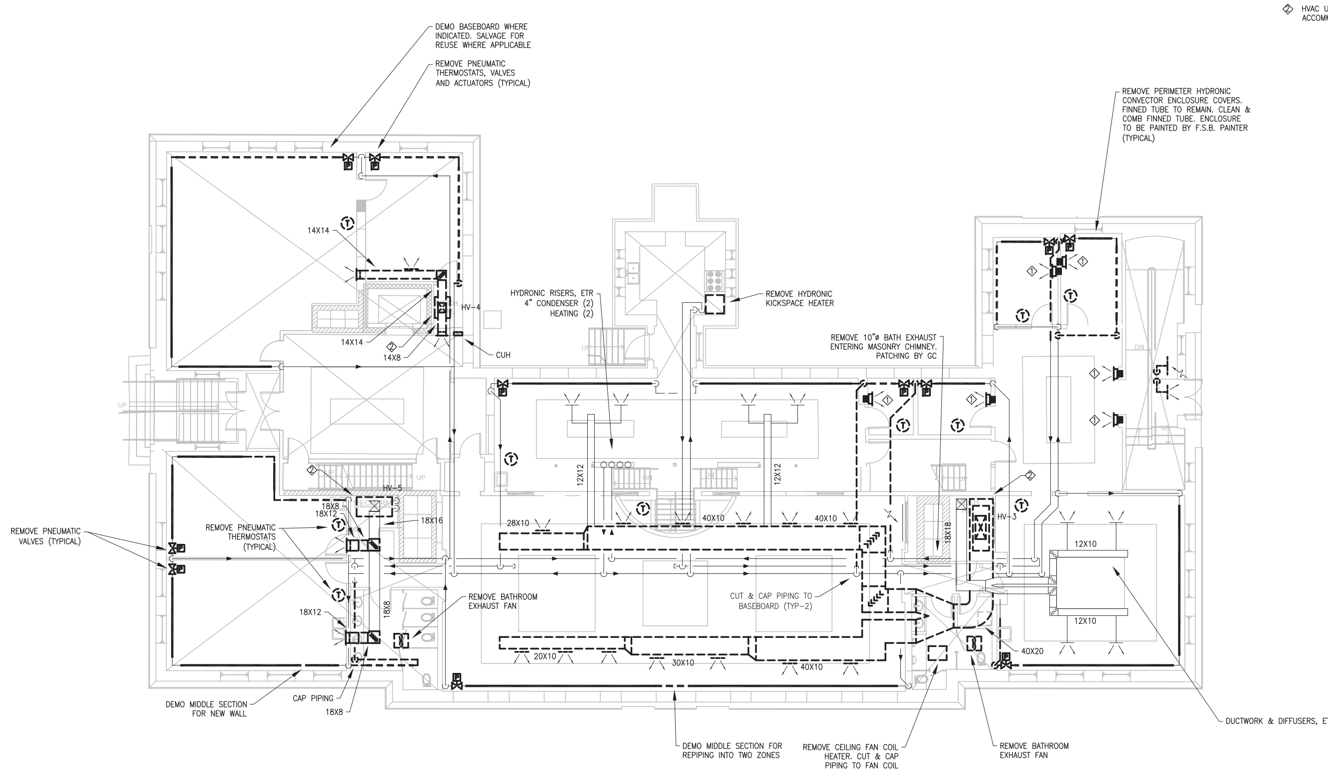
1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. MC SHALL CUT, CAP, & MAKE SAFE PIPE AND DUCT CONNECTIONS TO EQUIPMENT TO FACILITATE REMOVAL & DISPOSAL BY GC.
4. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SIT TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- DEMOLISH & DISPOSE
- EXISTING TO REMAIN (ETR)
- EXISTING TO REMAIN (BELOW FLOOR)

KEYED NOTES:

1. REMOVE BRANCH DUCT. CAP, SEAL, & INSULATE MAIN DUCT.
2. HVAC UNIT TO BE REMOVED. RETAIN PIPING & DUCTWORK TO ACCOMMODATE NEW UNIT.



1 MD101 FIRST FLOOR MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

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DRAWING FIRST FLOOR MECHANICAL DEMOLITION PLAN

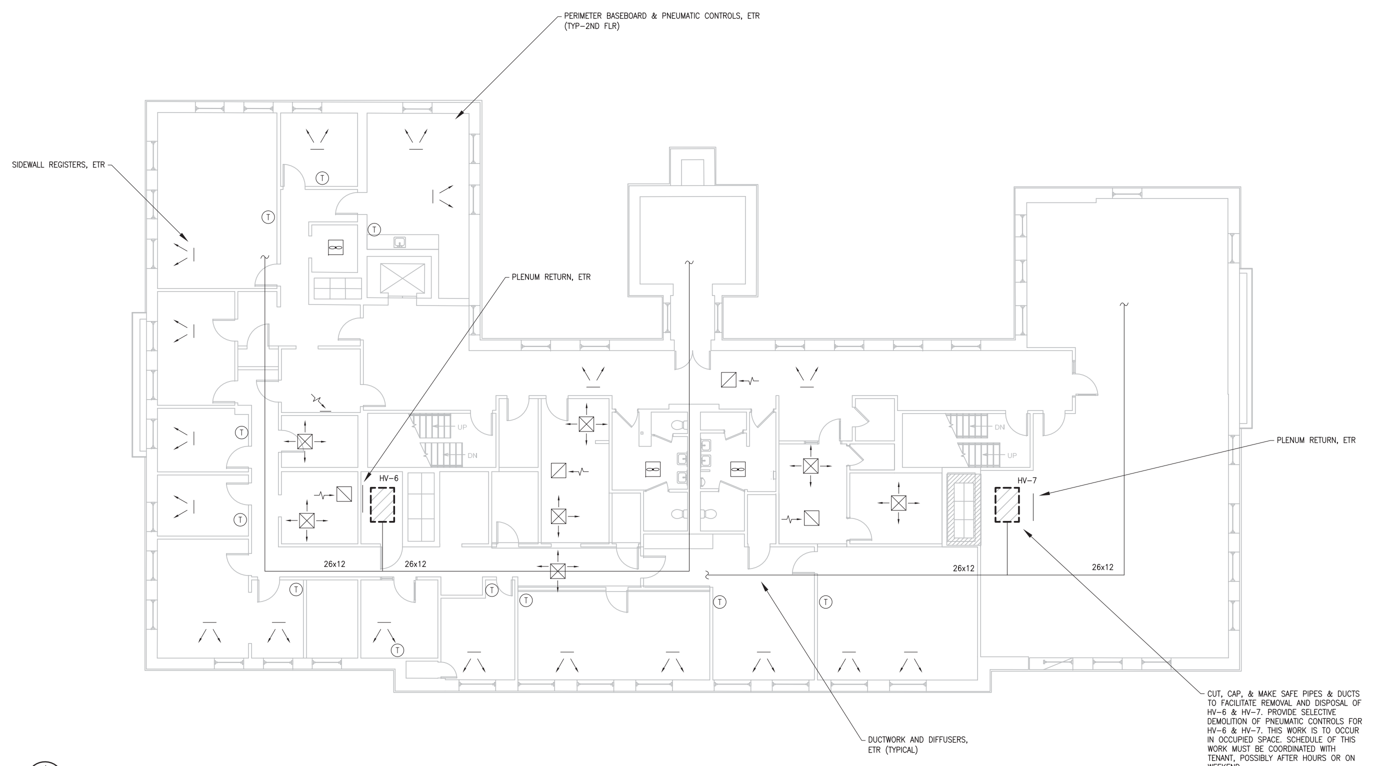
DRAWING NUMBER MD101

MECHANICAL DEMOLITION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. MC SHALL CUT, CAP, & MAKE SAFE PIPE AND DUCT CONNECTIONS TO EQUIPMENT TO FACILITATE REMOVAL & DISPOSAL BY GC.
4. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SIT TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- – – – – – DEMOLISH & DISPOSE
- ——— EXISTING TO REMAIN (ETR)
- — — — EXISTING TO REMAIN (BELOW FLOOR)



1
MD102
SECOND FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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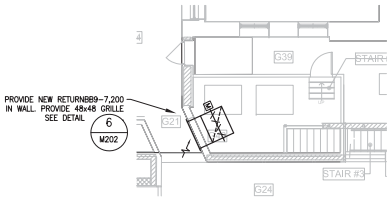
DRAWING NUMBER MD102
DRAWING SECOND FLOOR MECHANICAL DEMOLITION PLAN

MECHANICAL NOTES:

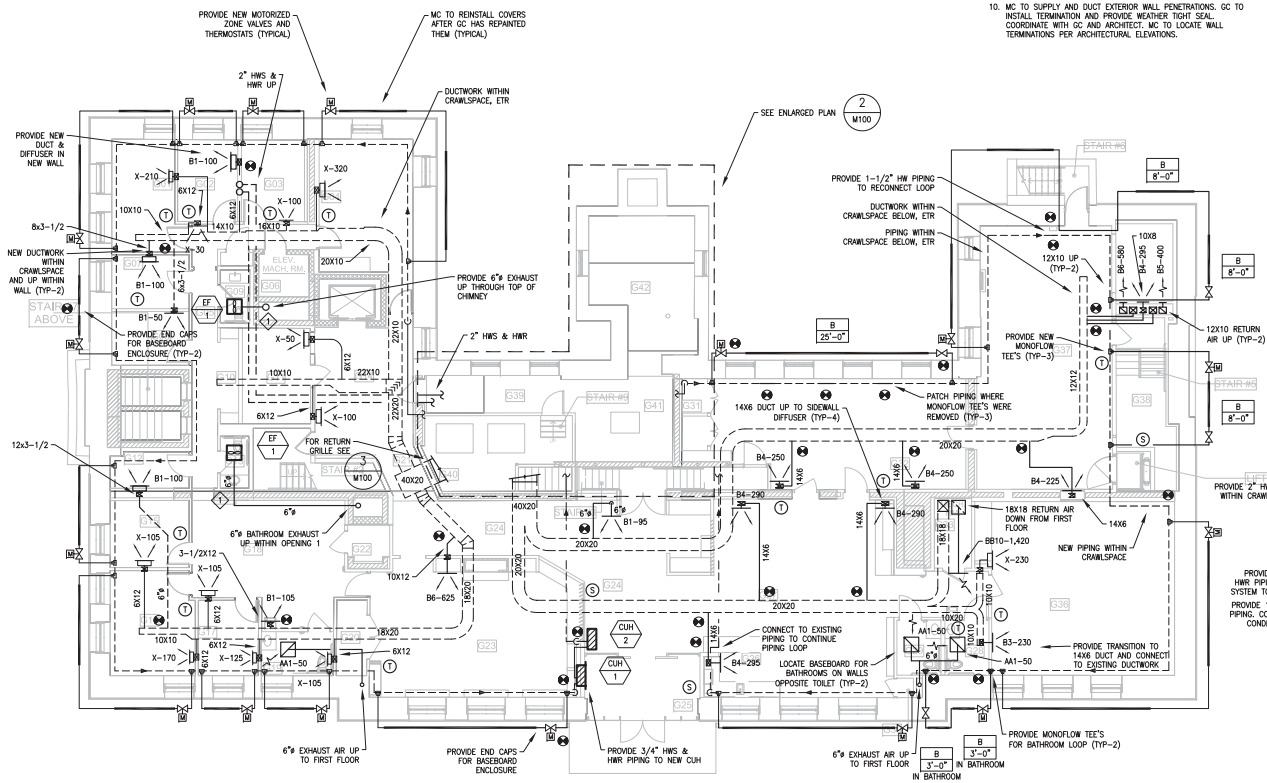
1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. SEE ARCH DRAWINGS FOR LOCATIONS OR EQUIPMENT IN EXPOSED ROOMS. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
4. EQUIPMENT, DUCTS AND PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
5. GC TO PROVIDE REQUIRED FIRESTOPPING AND ACOUSTICAL SEALANT. MC TO PROVIDE GC WITH MARKED UP PLAN SHOWING PENETRATIONS.
6. MC TO SUPPLY ACCESS HATCHES. GC TO INSTALL (E.G. FIRE DAMPERS).
7. PROVIDE DUCT LINER FOR THE FIRST TEN FEET OF SUPPLY AND RETURN DUCTWORK ADJACENT TO FURNACE OR AHU. DIMENSIONS INDICATED ARE INSIDE CLEAR DIMENSIONS. OVERALL SIZE OF DUCTWORK WILL NEED TO BE INCREASED TO ACCOMMODATE LINER. PROVIDE EXTERNAL DUCT INSULATION FOR REMAINDER OF DUCT SYSTEM.
8. CONCEAL ALL CONTROL WIRING FOR THERMOSTATS WITHIN WALLS. NO SURFACE MOUNTED RACEWAYS.
9. INSTALL ALL DUCTS AND PIPING ON WARM SIDE OF INSULATION.
10. MC TO SUPPLY AND DUCT EXTERIOR WALL PENETRATIONS. GC TO INSTALL TERMINATION AND PROVIDE WEATHER TIGHT SEAL. COORDINATE WITH GC AND ARCHITECT. MC TO LOCATE WALL TERMINATIONS PER ARCHITECTURAL ELEVATIONS.

KEYED NOTES:

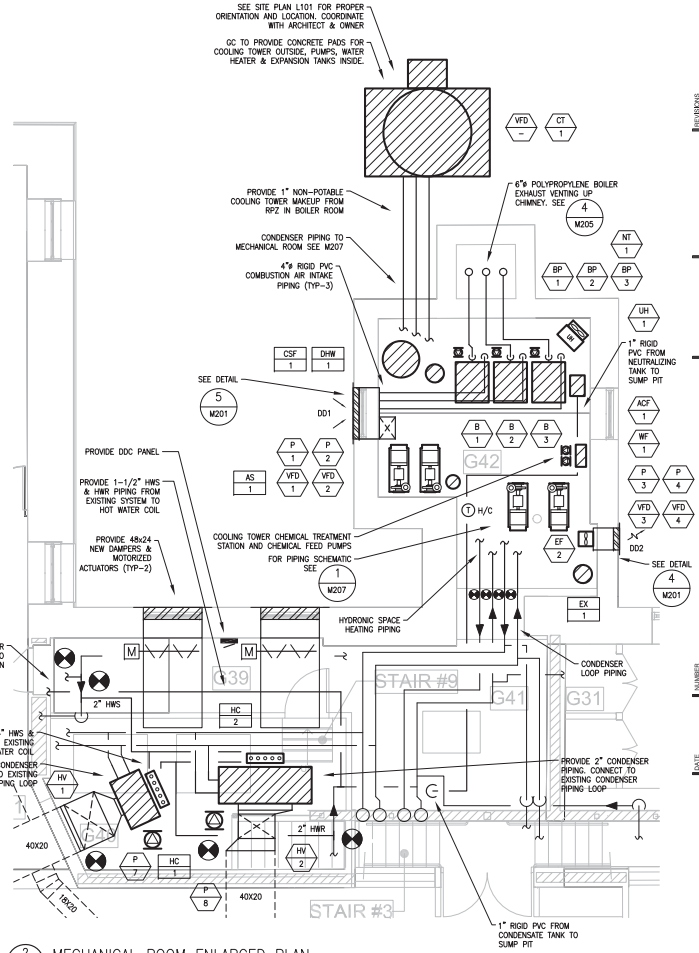
1 CORING OF MASONRY WALL BY GC. MC TO PROVIDE GC WITH MARKED UP PLAN INDICATING LOCATIONS AND SIZE.



3 M100 GROUND FLOOR MECHANICAL PART PLAN
SCALE: 1/8" = 1'-0"



1 M100 GROUND FLOOR MECHANICAL PLAN
SCALE: 1/8" = 1'-0"



2 M100 MECHANICAL ROOM ENLARGED PLAN
SCALE: 1/4" = 1'-0"

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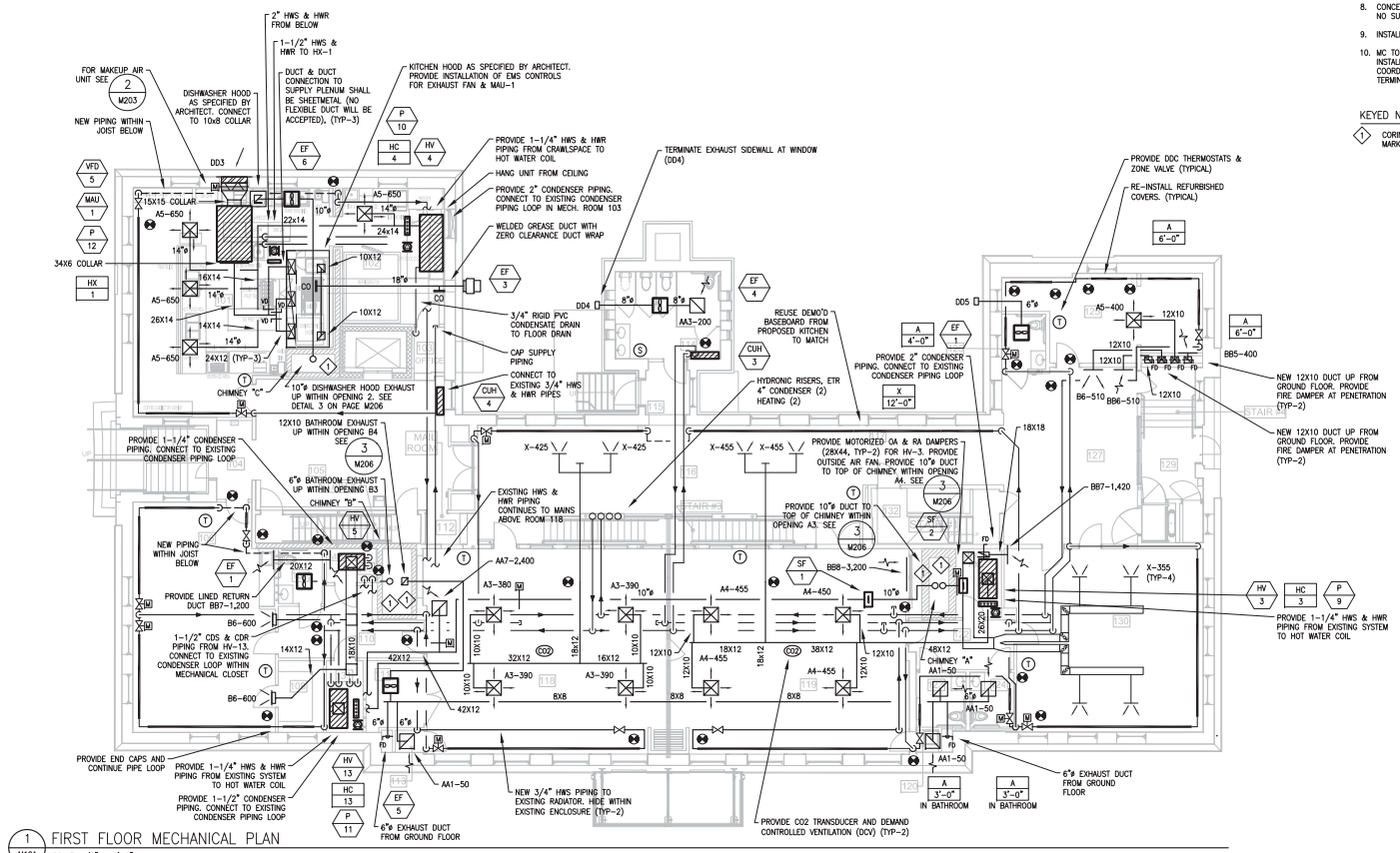
DRAWING GROUND FLOOR MECHANICAL PLAN

DRAWING NUMBER M100



1/M101 FIRST FLOOR MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

MECHANICAL NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. SEE ARCH DRAWINGS FOR LOCATIONS OR EQUIPMENT IN EXPOSED ROOMS. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
4. EQUIPMENT, DUCTS AND PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
5. GC TO PROVIDE REQUIRED FIRESTOPPING AND ACOUSTICAL SEALANT. MC TO PROVIDE GC WITH MARKED UP PLAN SHOWING PENETRATIONS.
6. MC TO SUPPLY ACCESS HATCHES. GC TO INSTALL.
7. PROVIDE DUCT LINER FOR THE FIRST TEN FEET OF SUPPLY AND RETURN DUCTWORK ADJACENT TO FURNACE OR AHU. DIMENSIONS INDICATED ARE INSIDE CLEAR DIMENSIONS. OVERALL SIZE OF DUCTWORK WILL NEED TO BE INCREASED TO ACCOMMODATE LINER. PROVIDE EXTERNAL DUCT INSULATION FOR REMAINDER OF DUCT SYSTEM.
8. CONCEAL ALL CONTROL WIRING FOR THERMOSTATS WITHIN WALLS. NO SURFACE MOUNTED RACEWAYS.
9. INSTALL ALL DUCTS AND PIPING ON WARM SIDE OF INSULATION.
10. MC TO SUPPLY AND DUCT EXTERIOR WALL PENETRATIONS. GC TO INSTALL TERMINATION AND PROVIDE WEATHER TIGHT SEAL. COORDINATE WITH GC AND ARCHITECT. MC TO LOCATE WALL TERMINATIONS PER ARCHITECTURAL ELEVATIONS.

KEYED NOTES:

1. CORING OF MASONRY WALL BY GC. MC TO PROVIDE GC WITH MARKED UP PLAN INDICATING LOCATIONS AND SIZE.

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DATE 04/10/2019
NUMBER 1805.00
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWN BY
CHECKED BY GAC

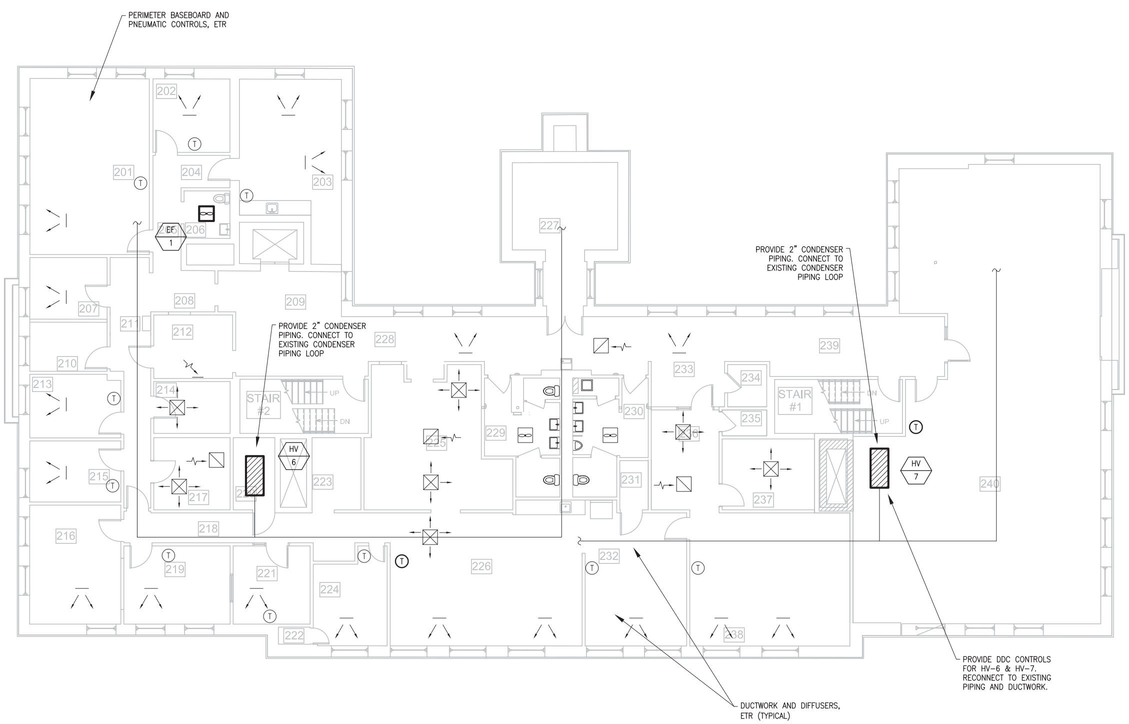
DRAWING FIRST FLOOR MECHANICAL PLAN
DRAWING NUMBER M101

MECHANICAL NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. SEE ARCH DRAWINGS FOR LOCATIONS OR EQUIPMENT IN EXPOSED ROOMS. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
4. EQUIPMENT, DUCTS AND PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
5. GC TO PROVIDE REQUIRED FIRESTOPPING AND ACOUSTICAL SEALANT. MC TO PROVIDE GC WITH MARKED UP PLAN SHOWING PENETRATIONS.
6. MC TO SUPPLY ACCESS HATCHES. GC TO INSTALL.
7. PROVIDE DUCT LINER FOR THE FIRST TEN FEET OF SUPPLY AND RETURN DUCTWORK ADJACENT TO FURNACE OR AHU. DIMENSIONS INDICATED ARE INSIDE CLEAR DIMENSIONS. OVERALL SIZE OF DUCTWORK WILL NEED TO BE INCREASED TO ACCOMMODATE LINER. PROVIDE EXTERNAL DUCT INSULATION FOR REMAINDER OF DUCT SYSTEM.
8. CONCEAL ALL CONTROL WIRING FOR THERMOSTATS WITHIN WALLS. NO SURFACE MOUNTED RACEWAYS.
9. INSTALL ALL DUCTS AND PIPING ON WARM SIDE OF INSULATION.
10. MC TO SUPPLY AND DUCT EXTERIOR WALL PENETRATIONS. GC TO INSTALL TERMINATION AND PROVIDE WEATHER TIGHT SEAL. COORDINATE WITH GC AND ARCHITECT. MC TO LOCATE WALL TERMINATIONS PER ARCHITECTURAL ELEVATIONS.

KEYED NOTES:

1. CORING OF MASONRY WALL BY GC. MC TO PROVIDE GC WITH MARKED UP PLAN INDICATING LOCATIONS AND SIZE.



2 M102 SECOND FLOOR MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

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PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

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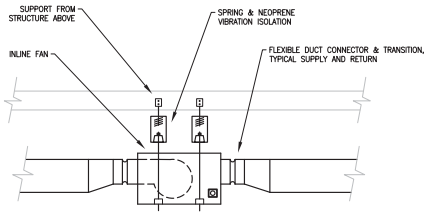
GAC

DRAWING
SECOND FLOOR MECHANICAL PLAN

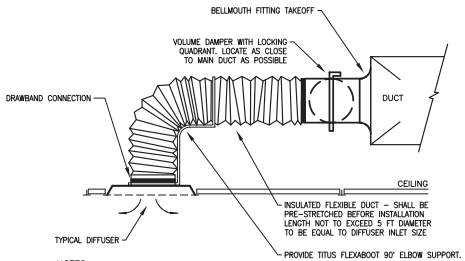
DRAWING NUMBER
M102



NOTES

1. SEE PLANS, SCHEDULES AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.
2. EC TO PROVIDE LOCAL DISCONNECT FOR EACH FAN.
3. PROVIDE RHEOSTAT FOR FAN SPEED CONTROL MOUNTED TO UNIT, SEE SCHEDULES.

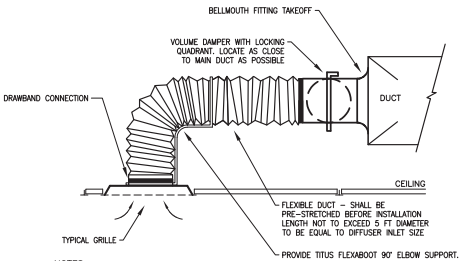
1 M201 IN-LINE EXHAUST FAN
SCALE: NTS



NOTES:

1. FLEX DUCT RUNOUT SIZE SHALL MATCH DIFFUSER NECK-SIZE.
2. THE CEILING SUPPORT SYSTEM MUST SUPPORT GRILLE WEIGHT WHEN FLEXIBLE CONNECTIONS ARE USED.
3. FLEXIBLE DUCT SHALL NOT HAVE MORE THAN 1/2" SAG/FT. SUPPORT FLEX DUCT AS REQUIRED.
4. INSULATE DUCTWORK AND PLENUM INCLUDING CONTINUOUS VAPOR BARRIER.

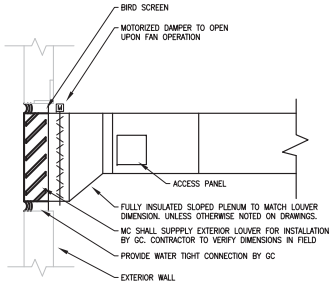
2 M201 TYPICAL SUPPLY DIFFUSER DETAIL
SCALE: NTS



NOTES:

1. FLEX DUCT RUNOUT SIZE SHALL MATCH DIFFUSER NECK-SIZE.
2. THE CEILING SUPPORT SYSTEM MUST SUPPORT GRILLE WEIGHT WHEN FLEXIBLE CONNECTIONS ARE USED.
3. FLEXIBLE DUCT SHALL NOT HAVE MORE THAN 1/2" SAG/FT. SUPPORT FLEX DUCT AS REQUIRED.

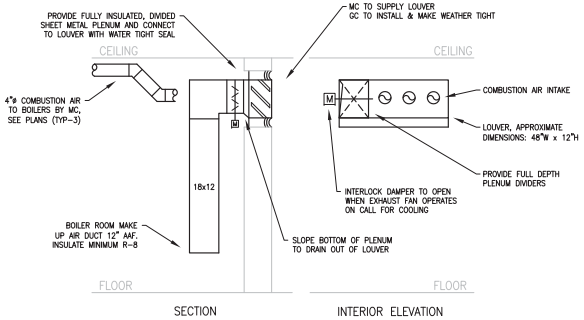
3 M201 TYPICAL RETURN GRILLE DETAIL
SCALE: NTS



NOTES

1. SEE TERMINATIONS SCHEDULE, SPECIFICATIONS, AND PLANS FOR FURTHER REQUIREMENTS.
2. INSULATE PLENUM AND OA DUCT WITH MIN R-12 & CONTINUOUS EXTERIOR VAPOR BARRIER.
3. PROVIDE LIQUID DUCT SEALANT FOR ALL SEAMS AND JOINTS.

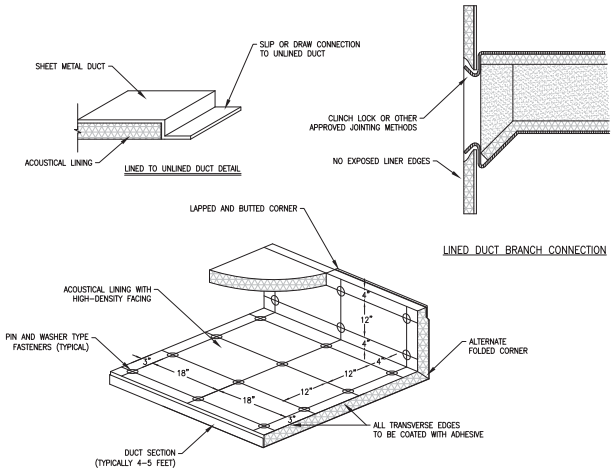
4 M201 LOUVER DETAIL
SCALE: NTS



NOTES:

1. SEE PLANS, DETAILS & SPECIFICATIONS FOR FURTHER REQUIREMENTS.
2. EXTERNALLY INSULATE PLENUM TO MINIMUM R-8.
3. DUCT & CONNECT COMBUSTION AIR INTAKE TO EACH BOILER PER PLAN AND MANUFACTURERS REQUIREMENTS.

5 M201 LOUVER DETAIL
SCALE: NTS

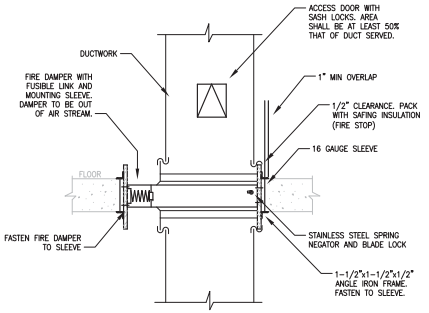


FLEXIBLE DUCT LINER INSTALLATION

NOTES:

1. LINER ADHERED TO THE DUCT WITH 90% MINIMUM AREA COVERAGE OF ADHESIVE.
2. THE VELOCITY RATED SIDE OF LINER MUST FACE THE AIR FLOW.
3. DUCT SIZES SHOWN ON DRAWINGS ARE "INSIDE CLEAR" DIMENSIONS.
4. INDICATED DIMENSIONS ARE MAXIMUM SPACING FOR FASTENERS. INTERVALS ARE APPROXIMATE.
5. ONALL LEADING EDGES PROVIDE METAL NOSING OR FOLD HIGH-DENSITY FACING OVER AND SECURE TO DUCT.
6. ALL TRAILING EDGES SHALL BE SEALED WITH MASTIC.

6 M201 DUCT LINER DETAIL
SCALE: NTS



NOTES

1. SEE SPECIFICATIONS FOR TYPE OF CONNECTION TO DUCT, SLEEVE AND DAMPER GAUGE, AND DAMPER DETAILS.
2. TYPE B FIRE DAMPER SHOWN. FOR APPLICABLE CODES SEE SPECIFICATIONS

7 M201 FIRE DAMPER @ FLOOR
SCALE: NTS

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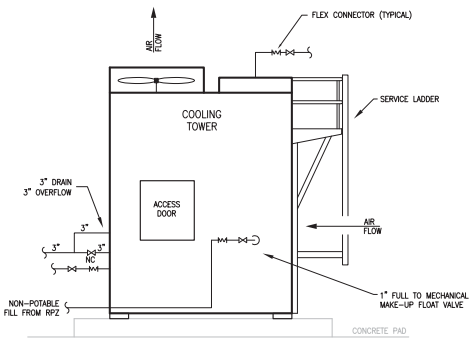
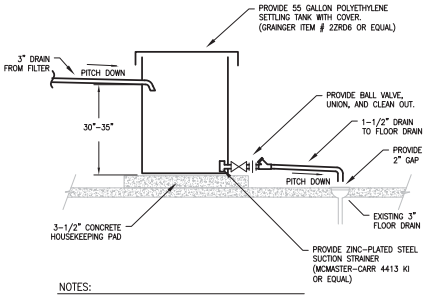
DRAWING MECHANICAL DETAILS
DRAWING NUMBER M201



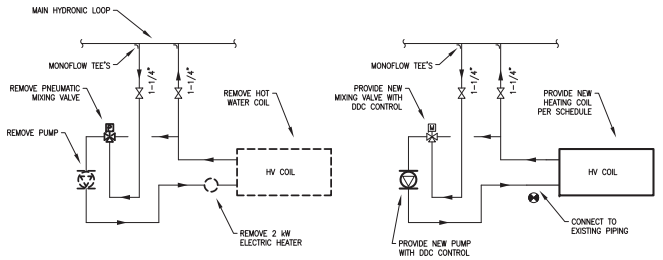
1 M202 COOLING TOWER
SCALE: NTS



NOTES:

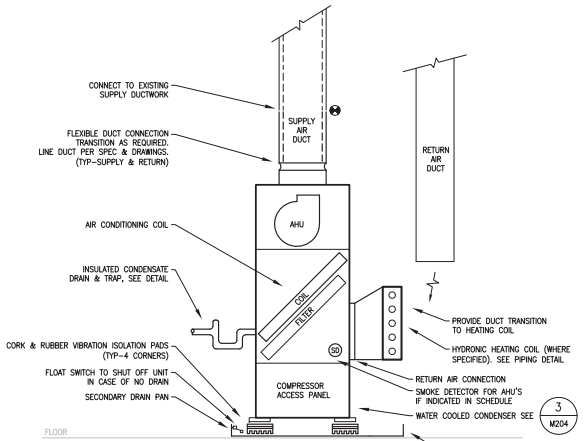
1. PROVIDE PHENOLIC-ENGRAVED SIGN STATING THE FOLLOWING: "INSPECT AND CLEAN SETTLING TANK TWICE PER YEAR"

2 M202 SETTLING TANK DETAIL
SCALE: NTS



EXISTING PROPOSED

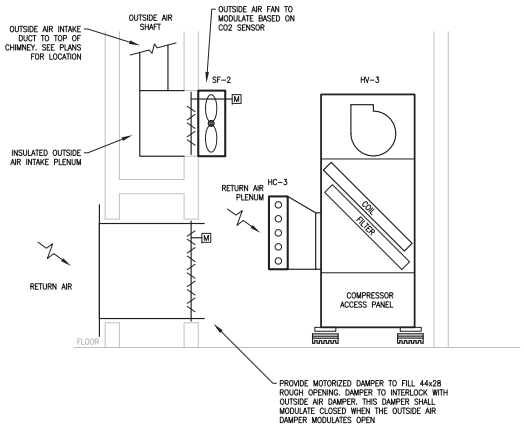
3 M202 TYPICAL HV UNIT HOT WATER COIL PIPING
SCALE: NTS



NOTES:

1. SEE DETAILS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT PER CODE AND PER MANUFACTURERS INSTRUCTIONS.
3. DO NOT OPERATE UNITS W/O FILTERS DURING CONSTRUCTION. CHANGE FILTERS ONCE AFTER SUBSTANTIAL COMPLETION. PROVIDE ADDITIONAL SETS OF FILTERS FOR STORAGE PER OWNER.
4. PROVIDE AHU PER SCHEDULE INCLUDING: ALL MATERIALS REQUIRED TO INTEGRATE INSTALLATION INTO EXISTING CONDITION.
5. INSULATE ALL HYDRONIC PIPING, VALVES, & FITTINGS. PIPE HANGERS TO BE SIZED FOR EXTERIOR OF INSULATION, INCLUDING CONTINUOUS EXTERNAL VAPOR BARRIER.
6. PROVIDE DDC CONTROL PER PLANS AND SPEC.
7. PROTOTYPE REQUIRED: BEFORE INSTALLING ANY SIMILAR INSTALLATIONS PREPARE ONE FOR REVIEW BY ENGINEER AND OWNER. SECURE OWNER & ENGINEERS APPROVAL BEFORE PROCEEDING.
8. COORDINATE INSTALLATION TO ENSURE BEST ACCESS FOR FUTURE SERVICE. SELECT HAND FOR BEST SERVICE.

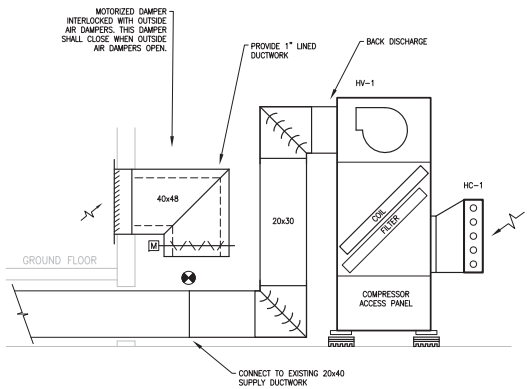
4 M202 AIR CONDITIONING UNIT DETAIL
SCALE: NTS



NOTES:

1. SEE DETAILS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT PER CODE AND PER MANUFACTURERS INSTRUCTIONS.
3. PROVIDE DDC CONTROL PER PLANS AND SPEC.
4. FOR GENERAL AHU REQUIREMENTS SEE 4 M202

5 M202 HV-3 OUTSIDE AIR AND RETURN AIR DETAIL
SCALE: NTS



NOTES:

1. SEE DETAILS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT PER CODE AND PER MANUFACTURERS INSTRUCTIONS.
3. PROVIDE DDC CONTROL PER PLANS AND SPEC.
4. FOR GENERAL AHU REQUIREMENTS SEE 4 M202

6 M202 HV-1 RETURN AIR AND SUPPLY AIR DETAIL
SCALE: NTS

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NUMBER 1805.00
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
DATE 04/10/2019
DRAWN BY
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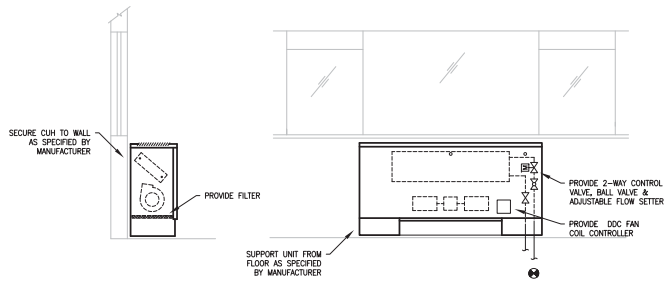
FLOOR

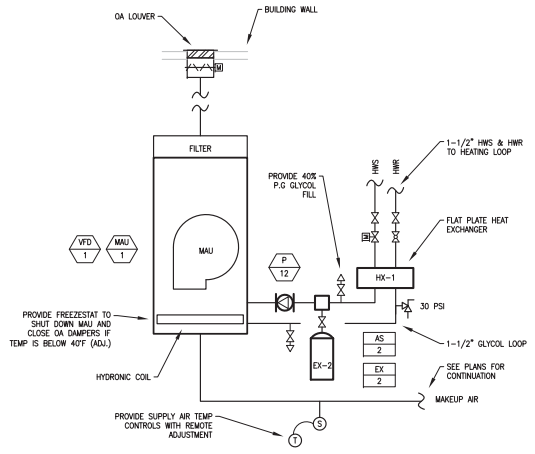
DRAWING MECHANICAL DETAILS
DRAWING NUMBER M202



NOTES:

1. SEE DETAILS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT PER CODE AND PER MANUFACTURERS INSTRUCTIONS.
3. PROVIDE PROTOTYPE INSTALLATION FOR ONE FANCOIL BEFORE PROVIDING ADDITIONAL INSTALLATIONS. SECURE OWNER & ENGINEERS APPROVAL BEFORE PROCEEDING.
4. DO NOT OPERATE UNITS W/O FILTERS DURING CONSTRUCTION. CHANGE FILTERS ONCE AFTER SUBSTANTIAL COMPLETION.
5. PROVIDE CUH PER SCHEDULE INCLUDING: ALL MATERIALS REQUIRED TO INTEGRATE INSTALLATION INTO EXISTING CONDITION.
6. ALL HYDRONIC PIPING TO CUH'S SHALL BE 3/4" UNLESS NOTED OTHERWISE.
7. INSULATE ALL HYDRONIC PIPING INCLUDING CONTINUOUS EXTERNAL VAPOR BARRIER.
8. PROVIDE DDC WALL MOUNT THERMOSTATS PER PLANS AND SPEC INCLUDING ANY REQUIRED INTERFACES AND BACNET COMPATIBILITY.

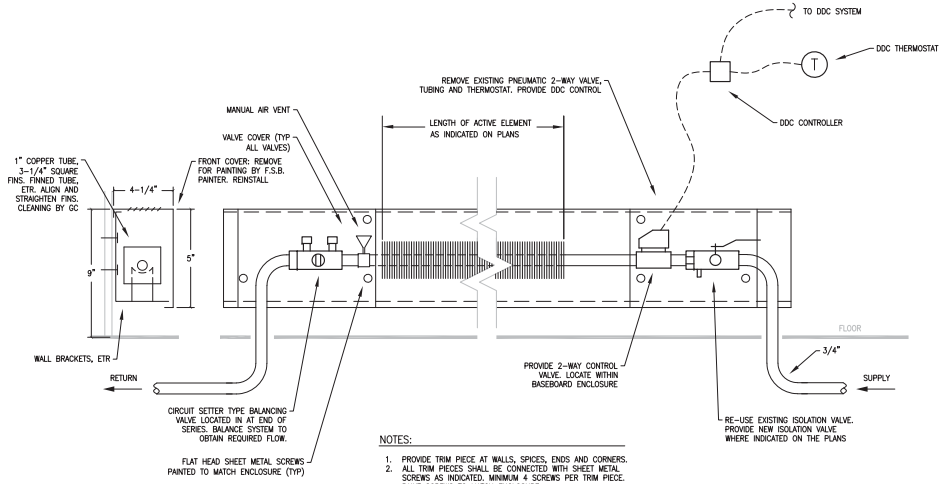
1 / M203 CABINET UNIT HEATER INSTALLATION DETAIL
SCALE: NTS



NOTES:

1. PROVIDE INSTALLATION OF EMS CONTROLS FURNISHED WITH KITCHEN HOOD. MAU SHALL OPERATE IN VAV MODE AS COMMANDED FROM EMS.

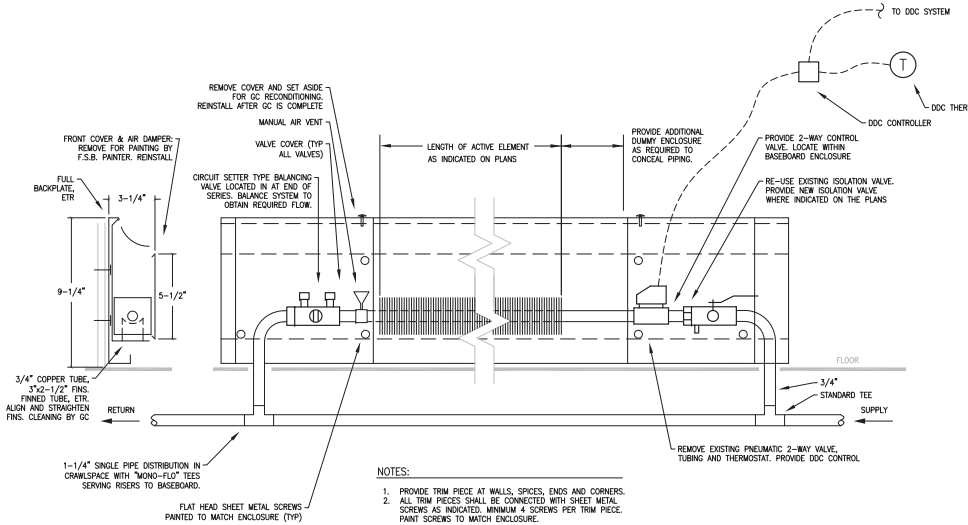
2 / M203 KITCHEN MAKE-UP AIR SYSTEM
SCALE: NTS



NOTES:

1. PROVIDE TRIM PIECE AT WALLS, SPICES, ENDS AND CORNERS.
2. ALL TRIM PIECES SHALL BE CONNECTED WITH SHEET METAL SCREWS AS INDICATED. MINIMUM 4 SCREWS PER TRIM PIECE. PAINT SCREWS TO MATCH ENCLOSURE.

3 / M203 TYPE A: FIN TUBE RADIATION PIPING DETAIL (FIRST FLOOR-TYP.)
SCALE: NTS



NOTES:

1. PROVIDE TRIM PIECE AT WALLS, SPICES, ENDS AND CORNERS.
2. ALL TRIM PIECES SHALL BE CONNECTED WITH SHEET METAL SCREWS AS INDICATED. MINIMUM 4 SCREWS PER TRIM PIECE. PAINT SCREWS TO MATCH ENCLOSURE.

4 / M203 TYPE B: FIN TUBE RADIATION PIPING DETAIL (GROUND FLOOR-TYP.)
SCALE: NTS

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DATE 04/10/2019
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PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
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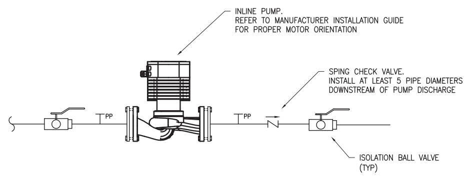
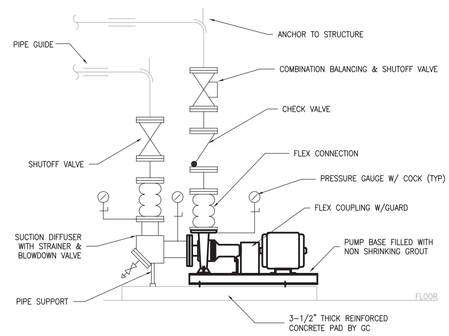
DRAWING MECHANICAL DETAILS
DRAWING NUMBER M203



NOTES:

1. PROVIDE FLEXIBLE CONNECTIONS & VIBRATION ISOLATION HANGERS FOR ALL PUMPS 3/4 HP AND OVER.
2. INSULATE FLANGES, PUMP BODIES & VALVE BODIES. RETAIN AND USE CUSTOM PUMP-BODY INSULATION FROM MANUFACTURER WHEN AVAILABLE.
3. VALVES PROVIDE EXTENDED STEMS FOR ALL VALVES TO ALLOW PROPER INSULATION.
4. SUPPORT PUMP BODY FOR PUMPS 1/2HP & OVER

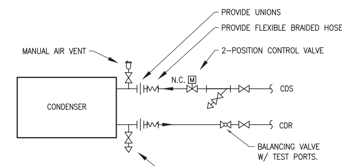
1 M204 INLINE PUMP DETAIL
SCALE: NTS



NOTES:

1. INSULATE FLANGES, PUMP BODIES, VALVE BODIES, STRAINERS & SUCTION DIFFUSERS.
2. PROVIDE EXTENDED STEMS FOR ALL VALVES TO ALLOW PROPER INSULATION.
3. PROVIDE CONTINUOUS EXTERIOR VAPOR BARRIER FOR ALL INSULATION.
4. PIPE HANGERS TO BE SIZED FOR EXTERIOR OF PIPE INSULATION.

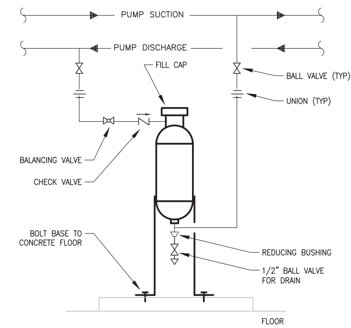
2 M204 BASE MOUNTED PUMP PIPING DETAIL
SCALE: NTS



NOTES

1. VALVES UP TO 2" SHALL BE BALL VALVES, USE 1/4 TURN VALVES ONLY.
2. CONTROL VALVE SHALL BE NORMALLY CLOSED.

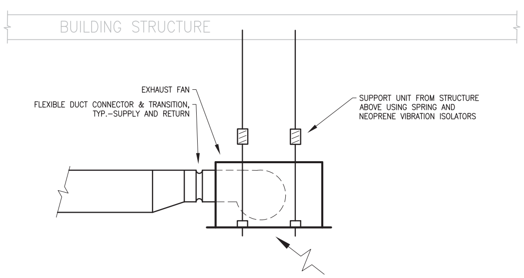
3 M204 CONDENSER PIPING
SCALE: NTS



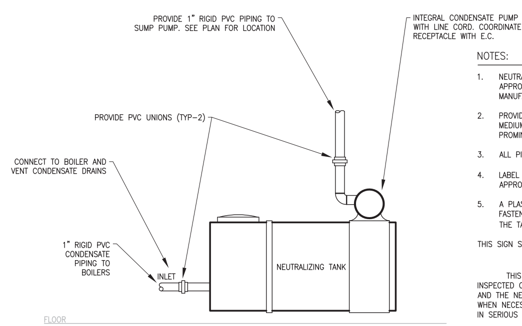
NOTES:

1. SEE BOILER PIPING SCHEMATIC FOR CHEMICAL TREATMENT REQUIREMENTS.

4 M204 CHEMICAL FEEDER PIPING DETAIL
SCALE: NTS



5 M204 CEILING EXHAUST FAN DETAIL
SCALE: NTS



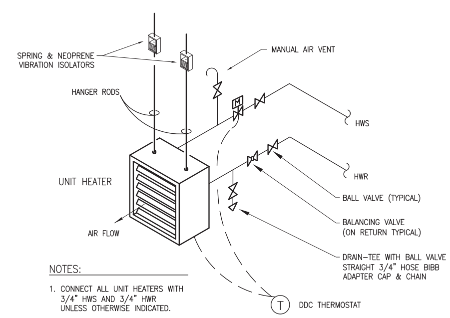
NOTES:

1. NEUTRALIZING TANK TO BE FILLED WITH APPROVED NEUTRALIZING AGENT FROM MANUFACTURER.
2. PROVIDE REPLACEMENT SPARE NEUTRALIZING MEDIUM IN THE BOILER ROOM AND PROMINENTLY LABEL.
3. ALL PIPING SHALL BE SCHEDULE 40 PVC.
4. LABEL PIPING WITH "BOILER CONDENSATE" AS APPROPRIATE.
5. A PLASTIC EMBOSSED SIGN SHALL BE FASTENED ON OR IN THE IMMEDIATE AREA OF THE TANK IN LETTERS 3/4" INCH HIGH.

THIS SIGN SHALL READ:

IMPORTANT
THIS NEUTRALIZING TUBE MUST BE INSPECTED ON A REGULAR AND FREQUENT BASIS AND THE NEUTRALIZING MEDIUM OR AGENT REPLACED WHEN NECESSARY. FAILURE TO DO SO WILL RESULT IN SERIOUS DAMAGE TO THE PIPING SYSTEM.

6 M204 CONDENSATE NEUTRALIZING TANK AND PUMP
SCALE: N.T.S



NOTES:

1. CONNECT ALL UNIT HEATERS WITH 3/4" HWS AND 3/4" HWR UNLESS OTHERWISE INDICATED.

7 M204 UNIT HEATER DETAIL
SCALE: NTS

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DATE 04/10/2019
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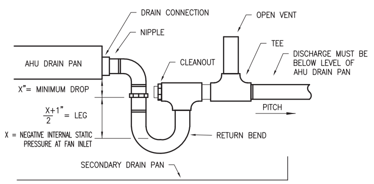
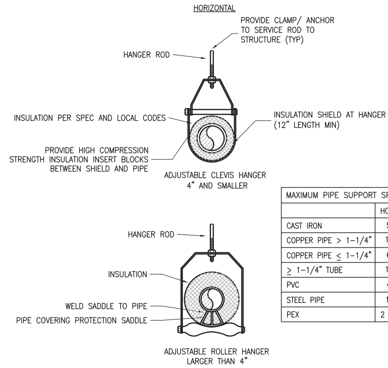
DRAWING MECHANICAL DETAILS
DRAWING NUMBER M204



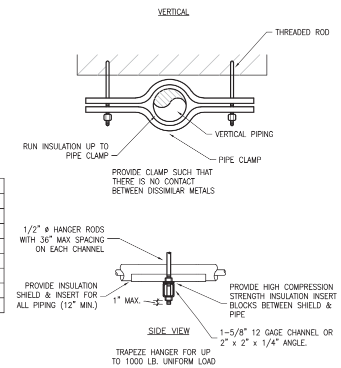
NOTES:

1. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
2. PROVIDE AUXILIARY DRAIN PAN AND FLOAT SWITCH.
3. PITCH DRAIN FOR PROPER RUN OFF.
4. MANUALLY FILL TRAP BEFORE STARTUP TO FORM INITIAL DRAIN SEAL.
5. SUPPORT DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.
6. INSULATE CONDENSATE TRAP AND PIPING FULLY.

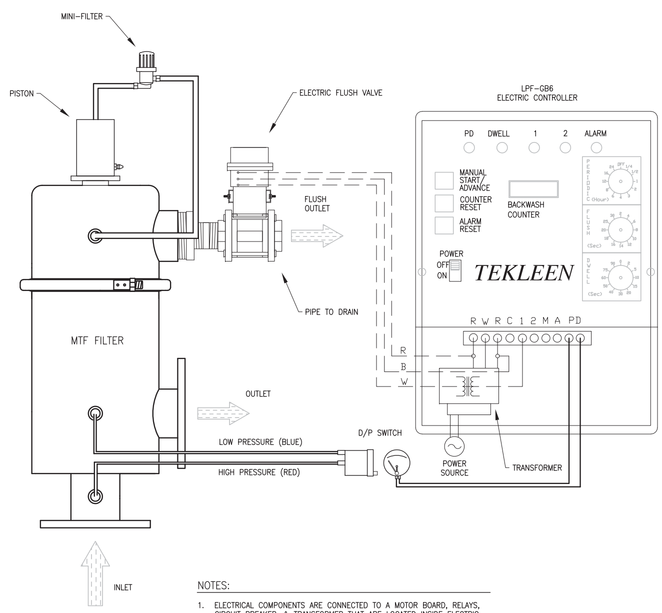
1 M205 CONDENSATE DRAIN WATER SEAL PIPING
SCALE: N.T.S.



MAXIMUM PIPE SUPPORT SPACING, FEET		
	HORIZ.	VERT.
CAST IRON	5	15
COPPER PIPE > 1-1/4"	12	10
COPPER PIPE ≤ 1-1/4"	6	10
≥ 1-1/4" TUBE	10	10
PVC	4	10
STEEL PIPE	10	10
PEX	2 2/3	10



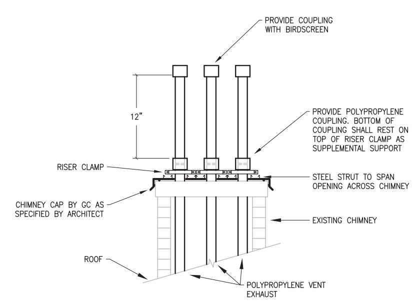
2 M205 TYPICAL PIPE HANGER DETAIL
SCALE: NTS



NOTES:

1. ELECTRICAL COMPONENTS ARE CONNECTED TO A MOTOR BOARD, RELAYS, CIRCUIT BREAKER, & TRANSFORMER THAT ARE LOCATED INSIDE ELECTRIC CONTROLLER BOX.
2. LOCATE CONTROLLER ON WALL NEAR FILTER

3 M205 CONDENSER LOOP WATER FILTER
SCALE: NTS



NOTES:

1. EXHAUST VENT SHALL BE POLYPROPYLENE OR AL29-4C STAINLESS STEEL
2. STRICTLY OBSERVE THE MANUFACTURER'S REQUIREMENTS REGARDING PIPE SIZING AND MAXIMUM EQUIVALENT LENGTH.
3. VENTING SHALL PITCH CONTINUOUSLY DOWNWARD TOWARDS HEATING UNIT.
4. TERMINATE DIRECT VENT AT THE EXTERIOR OF THE BUILDING IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. USE ONLY MANUFACTURER-SUPPLIED TERMINATIONS OR FIELD-SUPPLIED FITTINGS ASSEMBLED USING THE MANUFACTURER'S APPROVED CONFIGURATION FOR THE APPLIANCE. OBSERVE MANUFACTURER'S AND NFPA 54 REQUIRED VENT TERMINATION CLEARANCES TO BUILDING OPENINGS INCLUDING DOORS, WINDOWS, AND AIR INLETS. THE MORE STRINGENT OF THE TWO REQUIREMENTS SHALL APPLY.
4. ALL HARDWARE, STRUTS & CLAMPS SHALL BE GALVANIZED FOR OUTDOOR USE.

4 M205 VENTING TERMINATION DETAIL
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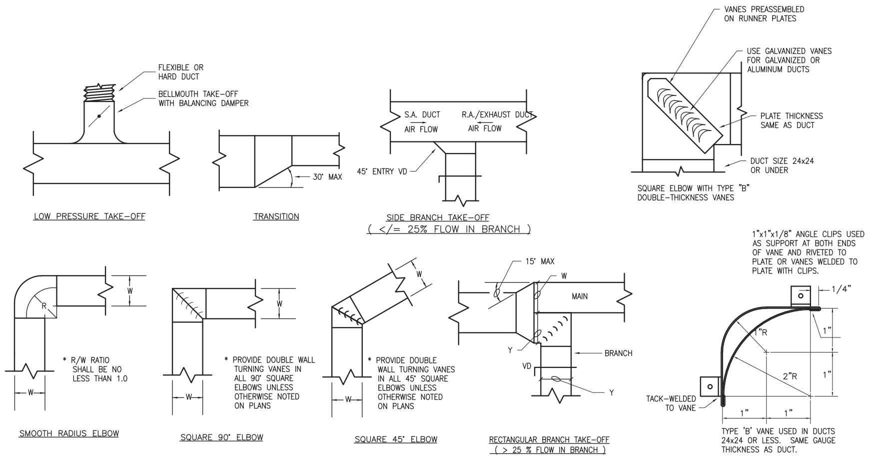
NUMBER 1805.00
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWING MECHANICAL DETAILS
DRAWING NUMBER M205

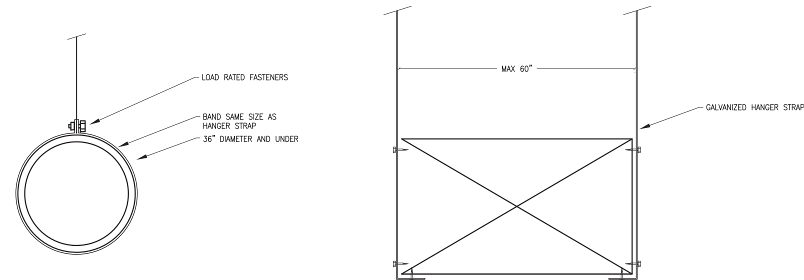


NOTES

1. ALL DUCTWORK AND DETAILS PER SMACNA.
2. PROVIDE LIQUID SEALANT AT ALL JOINTS & SEAMS.

1 (M206) LOW VELOCITY DUCT DETAILS

SCALE: NTS



HANGER STRAPS OR RODS		
MAX DUCT DIAM.	HANGER	MAX SPACING (FEET)
20"	ONE 1" x 22 GA. STRAP	10
36"	ONE 1" x 18 GA. STRAP	10

NOTES:

1. CUTTING AND PATCHING SHALL BE LIMITED TO A MINIMUM AS REQUIRED FOR PROPER INSTALLATION.
2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA.
3. ALL SUPPORTS SHALL BE GALVANIZED STEEL FOR STEEL DUCT. STAINLESS STEEL FOR STAINLESS STEEL DUCT, OR ALUMINUM FOR ALUMINUM DUCT.
4. HANGERS MUST NOT DEFORM DUCT SHAPE.
5. ATTACHMENTS TO STRUCTURE SHALL BE PER SMACNA.

2 (M206) TYPICAL DUCT HANGER SUPPORT DETAIL

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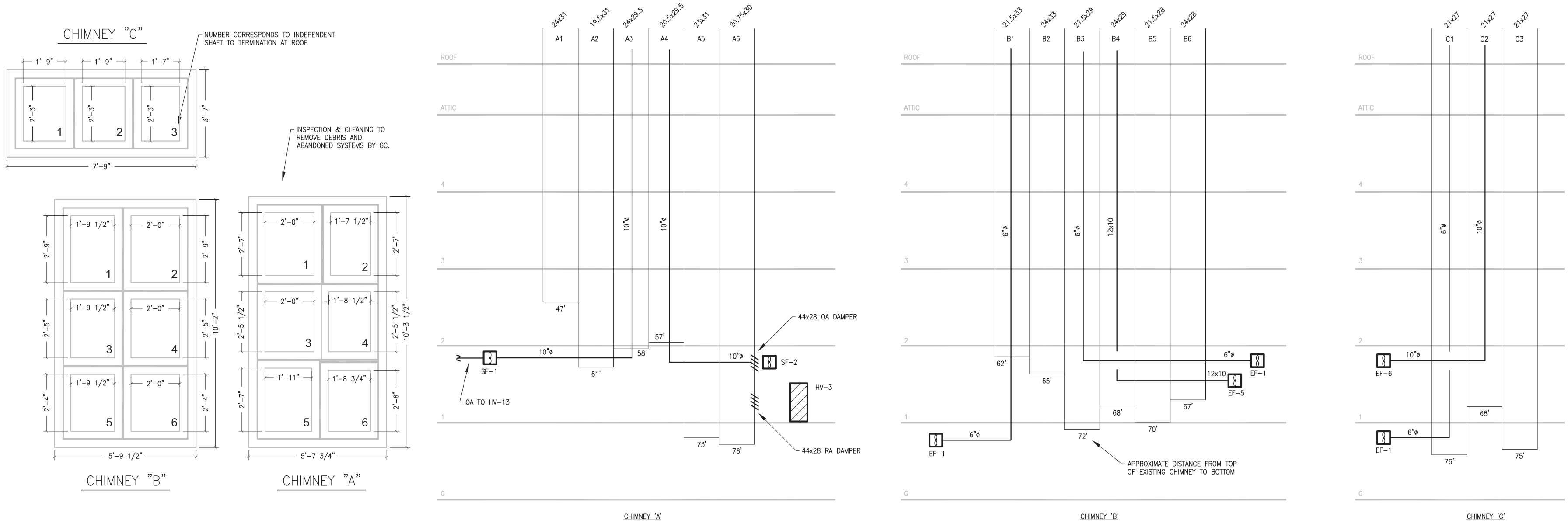

3 (M206) CHIMNEY OPENING LAYOUT

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PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

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MECHANICAL DETAILS

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SEQUENCE OF OPERATION:

1. COOLING TOWER & MAIN CIRCULATING PUMPS
   A. WHENEVER THE OUTDOOR AIR TEMPERATURE RISES ABOVE 60°F (ADJUSTABLE), COOLING TOWER AND MAIN CIRCULATING PUMPS SHALL BE ENABLED FOR PROVIDING COOLING.
   B. CONDENSER WATER PUMPS SHALL BE CONTROLLED BY VARIABLE FREQUENCY DRIVES (VFD) TO REDUCE FLOW AND ENERGY CONSUMPTION WHEN CONDITIONS ALLOW BASED ON TEMPERATURE SETPOINT. PUMPS ARE CONTROLLED AS THE FIRST STAGE OF COOLING TO SATISFY CONDENSER WATER TEMPERATURE SETPOINT.
   C. COOLING TOWER INCLUDES A VFD ON THE FAN THAT ACTS AS THE SECOND STAGE COOLING TO SATISFY CONDENSER WATER TEMPERATURE SETPOINT.
2. MAIN CIRCULATING PUMP
   A. THE LEAD PUMP SHALL BE ENABLED WHENEVER OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.).
   B. LEAD PUMP SHALL BE ROTATED BASED ON EQUAL RUN-TIME.
   C. IF THE LEAD PUMP FAILS (I.E. CURRENT SENSOR NOT PROVEN) THE LAG PUMP SHALL BE ENABLED.

DRAWING TAGS

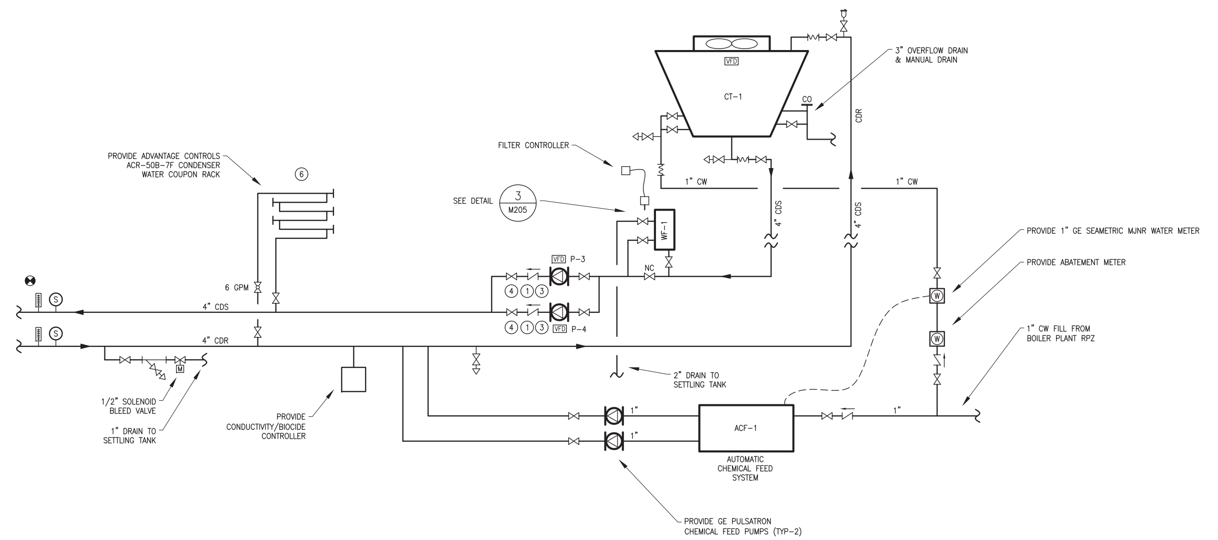
(1) PROVIDE DDC FOR AUTOMATIC CHANGE OVER ON PUMP FAILURE AND RUN TIME.
(2) OUTDOOR TEMPERATURE SENSOR. LOCATE AT NORTH BUILDING WALL 8 FEET ABOVE GRADE. SEE SENSOR DETAIL.
(3) PROVIDE CURRENT PROVING SWITCH.
(4) PROVIDE MAGNETIC STRAINER.
(5) PROVIDE VARIABLE FREQUENCY DRIVE FOR PUMP. SEE SCHEDULE.
(6) PROVIDE 301SS, COPPER, MILD STEEL, GALVANIZED STEEL AND BRASS COUPONS FOR COUPON RACK.

SYSTEM WATER FLUSHING AND TREATMENT:

1. THE COST OF CHEMICALS FOR THE SHORT TERM PLAN TERM IS TO BE INCLUDED.
2. PRIOR TO DEMOLITION, AGGRESSIVELY FLUSH ALL BUILDING DISTRIBUTION SYSTEM ELEMENTS. ENSURE THAT ALL ZONE VALVES ARE OPEN.
3. ONCE THE PIPING WORK IS SUBSTANTIALLY COMPLETE, FILL WITH POTABLE WATER AND FLUSH AGGRESSIVELY TO REMOVE LOOSE DEBRIS; FLUSH FROM EACH LOW POINT; ALL VALVES MUST BE OPENED TO PROMOTE CIRCULATION THROUGH ALL ELEMENTS OF THE SYSTEM.
4. ONCE THE SYSTEM IS FINALLY COMPLETE, FLUSH AGGRESSIVELY AGAIN AND DRAIN FROM ALL LOW POINTS INDIVIDUALLY THROUGHOUT THE SYSTEM.
5. INSTALL A FILTER BAG WITHIN THE CHEMICAL SHOT FEEDER, OPEN VALVES AND LEAVE THE SHOT FEEDER OPEN FOR 48 HOURS OR MORE.
6. PULL APART AND INSPECT ALL STRAINERS AND THE FILTER IN THE SHOT FEEDER. REPORT FINDINGS IN WRITING. SAVE THE BAG TO SHOW TO THE ENGINEER AND WATER QUALITY COMPANY REPRESENTATIVE.
7. ADD A HYDRONIC SYSTEM CLEANER SUCH AS HYDRO-SOLV 9100 AS MANUFACTURED BY RHOMAR. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR SOLUTION STRENGTH, DURATION, HEATING, ETC.. OPEN ALL VALVES AND CIRCULATE THROUGH ALL SYSTEM ELEMENTS. SCHEDULE THE QUALIFIED WATER QUALITY TREATMENT COMPANY REPRESENTATIVE FOR A VISIT AT THE CONCLUSION OF THIS INITIAL TREATMENT.
8. FLUSH SYSTEM TO REMOVE ALL TRACES OF THE CLEANER.
9. THE QUALIFIED WATER QUALITY TREATMENT COMPANY REPRESENTATIVE SHOULD TEST THE WATER QUALITY AND REPORT IN WRITING.
10. CIRCULATE CONTINUOUSLY FOR AT LEAST 4 HOURS.
11. AFTER FINAL FILL, PURGE AIR FROM ALL SYSTEM COMPONENTS.

GENERAL WATER SYSTEM NOTES:

1. SEE SPECIFICATIONS & DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT & DEVICES PER MANUFACTURERS' INSTRUCTIONS & CODE.
3. 3-1/2" CONCRETE HOUSEKEEPING PADS BY GC FOR MAIN CIRCULATOR PUMPS, EXPANSION TANKS, AND WATER TREATMENT EQUIPMENT. PADS SHALL BE A MINIMUM OF 6" BEYOND EQUIPMENT PERIMETER ON ALL SIDES.
4. PROVIDE DIELECTRIC FITTINGS FOR ALL DISSIMILAR METAL CONNECTIONS.
5. VENT ALL HIGH POINTS & DRAIN ALL LOW POINTS.
6. ALL DRAINS INCLUDE QUARTER-TURN VALVE AND 3/4" HOSE CONNECTION WITH BRASS CAP & CHAIN.
7. PROVIDE MINIMUM 10 PIPE DIAMETERS OF STRAIGHT PIPE BETWEEN PUMP DISCHARGE AND ANY VALVE OR FITTING.
8. PROVIDE VIBRATION ISOLATION FOR PUMPS 3/4 HORSEPOWER & LARGER.
9. BALL VALVES TO 2", BUTTERFLY 2-1/2", AND LARGER.
10. ALL CHECK VALVES TO BE SPRING-TYPE.
11. PROVIDE SUBMITTALS FOR ALL PIPE, VALVES, EQUIPMENT, & INSULATION.
12. PROVIDE PIPING & EQUIPMENT IDENTIFICATION PER SPEC.
13. ALL PUMPS SHALL BE FLOOR- OR WALL-MOUNTED. NO PUMPS TO BE HUNG FROM CEILING.
14. PROVIDE FACTORY TRAINED & AUTHORIZED START-UP FOR COOLING TOWER.
15. NO PIPE INSULATION REQUIRED IN CONDENSER PIPING; GC TO PREPARE, PRIME AND PAINT ALL INTERIOR AND EXTERIOR CONDENSER WATER PIPING.
16. DURING WINTER MONTHS DRAIN COOLING TOWER. COORDINATE CHANGE OVER DATE WITH OWNER.



1 / M207 CONDENSER WATER PIPING SCHEMATIC
SCALE: NTS

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DATE 04/10/2019
NUMBER 1805.00
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWN BY
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DRAWING WATER PIPING SCHEMATIC
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BOILER PLANT SEQUENCE OF OPERATION:

A. BOILER & MAIN CIRCULATING PUMPS
   1. WHENEVER THE OUTDOOR AIR TEMPERATURE DROPS BELOW 60°F (ADJUSTABLE WARM WEATHER SHUT-DOWN TEMPERATURE), THE BOILER AND MAIN CIRCULATING PUMPS SHALL BE ENABLED FOR PROVIDING SPACE HEAT.
   2. THE BOILERS SHALL MODULATE TO MAINTAIN SPACE HEAT WATER RESET TEMPERATURE SCHEDULE. THIS SCHEDULE SHALL BE RESET WITH RESPECT TO OUTDOOR AIR TEMPERATURE IN AN INVERSE MANNER AND BE FULLY ADJUSTABLE.
      a. THE INITIAL RESET SCHEDULE SHALL BE AS FOLLOWS:

OA TEMP	BOILER SUPPLY TEMP
60	90
12	160

B. BOILER MODULATING, STAGING AND ROTATION
   3. ALL BOILERS SHALL BE OPERATED IN A PARALLEL CASCADE SEQUENCE TO OPTIMIZE CONDENSING.
   4. THE LEAD BOILER SHALL MODULATE FIRE TO MAINTAIN THE TARGET SUPPLY WATER TEMPERATURE.
   5. THE INTEGRAL BOILER CONTROLS SHALL MODULATE FIRING RATE USING PID CALCULATIONS TO ACHIEVE THE TARGET TEMPERATURE.
   6. BOILERS SHALL BE ROTATED TO LEAD BOILER POSITION BASED ON RUNTIME.
   7. BOILER MAINTENANCE AND FAULT CODES SHALL BE DISPLAYED ON THE BOILER CONTROLLER.

C. MAIN CIRCULATING PUMPS
   1. THE LEAD PUMP SHALL BE ENABLED WHENEVER OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F (ADJ.).
   2. THE PUMP SEQUENCER SHALL ROTATE LEAD PUMP BASED ON RUN-TIME.
   3. IF THE LEAD PUMP FAILS (I.E. CURRENT SENSOR NOT PROVEN) THE LAG PUMP SHALL BE ENABLED.

D. DOMESTIC HOT WATER (DHW)
   1. BASED ON DHW TEMPERATURE SENSORS AT TANK, ADJUSTABLE TANK TEMPERATURE SET POINT AT 140° F, OPERATE CIRCULATORS AND BOILERS. REDUCE BOILER WATER SUPPLY TEMPERATURE TO A MINIMUM NEEDED TO MEET DHW DEMAND.

GENERAL BOILER ROOM NOTES:

1. SEE SPECIFICATIONS & DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT & DEVICES PER MANUFACTURERS' INSTRUCTIONS & CODE.
3. ALL POTABLE WATER AND GAS PIPING BY PC UNLESS NOTED OTHERWISE.
4. BOILER COMBUSTION AIR INTAKE AND CONDENSATE DRAIN BY MC.
5. BOILER ROOM PIPING, PEX NOT ALLOWED.
6. REQUIRED INSULATION: INSULATE ALL HYDRONIC PIPING WITH 1-1/2" THICK FIBERGLASS INSULATION FOR PIPING 1-1/2" & SMALLER. PROVIDE 2" THICK INSULATION FOR 2" & LARGER. INSULATION AND VAPOR BARRIER JACKET, TO RUN CONTINUOUSLY THROUGH HANGERS & SUPPORTS. SPACE PIPING ADEQUATELY TO ACCOMMODATE INSULATION.
7. REQUIRED INSULATION: INSULATE ALL VALVES, PUMP BODIES, FLANGED FITTINGS, AIR SEPARATORS, & STRAINERS. PROVIDE EXTENDED STEMS FOR ALL VALVE HANDLES WHERE REQUIRED FOR PROPER OPERATION. VALVES WITHOUT EXTENDED STEMS WILL BE REJECTED.
8. PROVIDE DIELECTRIC UNIONS FOR ALL DISSIMILAR METAL CONNECTIONS.
9. VENT ALL HIGH POINTS & DRAIN ALL LOW POINTS.
10. ALL DRAINS INCLUDE QUARTER-TURN VALVE AND 3/4" HOSE CONNECTION WITH BRASS CAP & CHAIN.
11. PROVIDE MINIMUM 10 PIPE DIAMETERS OF STRAIGHT PIPE BETWEEN PUMP DISCHARGE AND ANY VALVE OR FITTING.
12. PROVIDE VIBRATION ISOLATION FOR PUMPS 3/4 HORSEPOWER & LARGER.
13. BALL VALVES TO 2", BUTTERFLY 2-1/2", AND LARGER.
14. ALL CHECK VALVES TO BE SPRING-TYPE.
15. PROVIDE SUBMITTALS FOR ALL PIPE, VALVES, EQUIPMENT, & INSULATION.
16. PROVIDE PIPING & EQUIPMENT IDENTIFICATION PER SPEC.
17. ALL PUMPS SHALL BE FLOOR- OR WALL-MOUNTED. NO PUMPS TO BE HUNG FROM CEILING.
18. PROVIDE FACTORY TRAINED & AUTHORIZED START-UP FOR BOILERS & FOR BOILER AND DHW CONTROLS.

SYSTEM WATER FLUSHING AND TREATMENT:

1. THE COST OF CHEMICALS FOR THE SHORT TERM PLAN TERM IS TO BE INCLUDED.
2. PRIOR TO DEMOLITION, AGGRESSIVELY FLUSH ALL BUILDING DISTRIBUTION SYSTEM ELEMENTS. ENSURE THAT ALL ZONE VALVES ARE OPEN.
3. ONCE THE BOILER PLANT WORK IS SUBSTANTIALLY COMPLETE, FILL WITH POTABLE WATER AND FLUSH AGGRESSIVELY TO REMOVE LOOSE DEBRIS; FLUSH FROM EACH LOW POINT (BOILERS, ETC.); ALL VALVES MUST BE OPENED TO PROMOTE CIRCULATION THROUGH ALL ELEMENTS OF THE SYSTEM. IMMEDIATELY AFTER FLUSHING, HEAT THE SYSTEM WATER TO 200 DEGREES F AND CIRCULATE CONTINUOUSLY FOR OVER TWO HOURS WHILE MAINTAINING TEMPERATURE. FLUSH AGAIN, FILL WITH FRESH WATER, HEAT TO 200 DEGREES F AND CIRCULATE CONTINUOUSLY FOR 2 HOURS MINIMUM.
4. ONCE THE SYSTEM IS FINALLY COMPLETE, FLUSH AGGRESSIVELY AGAIN AND DRAIN FROM ALL LOW POINTS INDIVIDUALLY THROUGHOUT THE SYSTEM.
5. INSTALL A FILTER BAG WITHIN THE CHEMICAL SHOT FEEDER, OPEN VALVES AND LEAVE THE SHOT FEEDER OPEN FOR 48 HOURS OR MORE.
6. PULL APART AND INSPECT ALL STRAINERS AND THE FILTER IN THE SHOT FEEDER. REPORT FINDINGS IN WRITING. SAVE THE BAG TO SHOW TO THE ENGINEER AND WATER QUALITY COMPANY REPRESENTATIVE.
7. ADD A HYDRONIC SYSTEM CLEANER SUCH AS HYDRO-SOLV 9100 AS MANUFACTURED BY RHOMAR. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR SOLUTION STRENGTH, DURATION, HEATING, ETC.. OPEN ALL VALVES AND CIRCULATE THROUGH ALL SYSTEM ELEMENTS. SCHEDULE THE QUALIFIED WATER QUALITY TREATMENT COMPANY REPRESENTATIVE FOR A VISIT AT THE CONCLUSION OF THIS INITIAL TREATMENT.
8. FLUSH SYSTEM TO REMOVE ALL TRACES OF THE CLEANER.
9. THE QUALIFIED WATER QUALITY TREATMENT COMPANY REPRESENTATIVE SHOULD TEST THE WATER QUALITY AND REPORT IN WRITING.
10. HEAT THE SYSTEM WATER AND CIRCULATE CONTINUOUSLY FOR AT LEAST 4 HOURS.
11. AFTER FINAL FILL, PURGE AIR FROM ALL SYSTEM COMPONENTS.

DRAWING TAGS

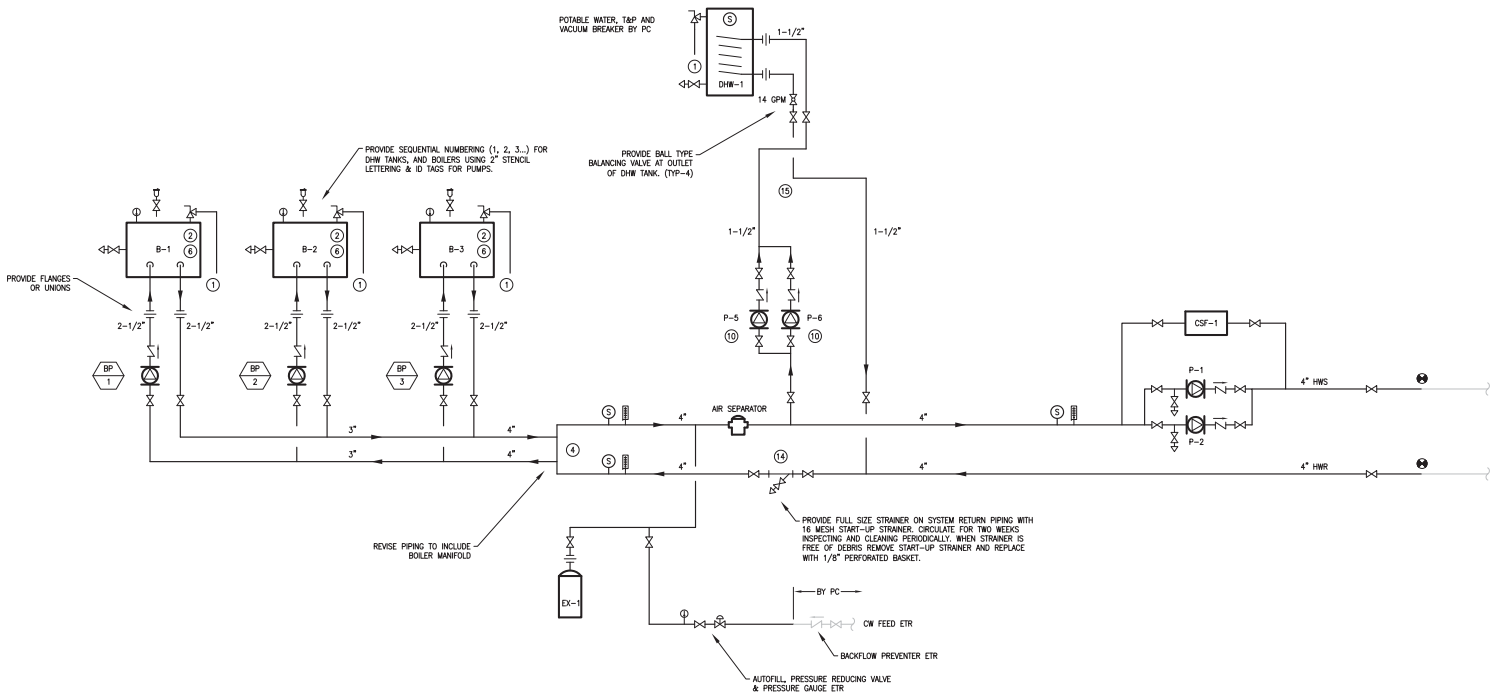
1. PIPE RELIEF BETWEEN 4" & 12" OF FLOOR.
2. PROVIDE CODE-REQUIRED SAFETIES INCLUDING LOW WATER CUT-OFF AND MANUAL RESET HIGH LIMIT.
3. N/A
4. PROVIDE MAXIMUM 4 PIPE DIAMETERS BETWEEN TEE FITTINGS.
5. PROVIDE AUTOMATIC CHANGE OVER ON PUMP FAILURE AND RUN TIME.
6. PROVIDE CONDENSATE DRAIN TO NEUTRALIZING TANK.
7. PROVIDE 3-WAY MIXING VALVE. CONTROLS SHALL MODULATE VALVE TO MAINTAIN OUTDOOR TEMPERATURE RESET.
8. OUTDOOR TEMPERATURE SENSOR.
9. N/A
10. PROVIDE CURRENT PROVING SWITCH WIRED TO PUMP SEQUENCER.
11. N/A
12. N/A
13. N/A
14. PROVIDE STRAINER
15. PROVIDE REVERSE RETURN PIPING.

CONTROLS & ELECTRICAL NOTES:

1. PROVIDE BURNER & BOILER PLANT CONTROL. SCOPE INCLUDES BUT IS NOT LIMITED TO: SENSORS, ACTUATORS, RELAYS, TRANSFORMERS, SAFETIES, WIRING & CONDUIT.
2. PROVIDE BOILER MANUFACTURER'S SYSTEM CONTROLLER & SENSORS THAT PROVIDE CONTROL OF INDIRECT FIRED DHW TANK TEMPERATURE, PUMPS, & OUTDOOR RESET CONTROL OF SPACE HEAT WATER TEMPERATURES.
3. ALL LINE VOLTAGE, EXCLUDING BOILER CONTROLS & SAFETIES, BY EC
4. TEST CONTROLS & PROVE ALL SEQUENCES PER SPECIFICATIONS PRIOR TO SUBSTANTIAL COMPLETION.
5. PROVIDE OUTDOOR RESET CONTROL OF HWS TEMPERATURE.
6. PROVIDE PRODUCT SUBMITTALS AND POINT TO POINT WIRING DIAGRAMS FOR ALL CONTROL COMPONENTS.
7. PROVIDE FACTORY TRAINED & AUTHORIZED START-UP FOR BOILERS & FOR BOILER CONTROLS.
8. RETURN TO PROJECT TWICE DURING FIRST HEATING SEASON AFTER FINAL COMPLETION TO REVIEW & OPTIMIZE CONTROL SETTINGS.

BALANCING:

1. BALANCE HYDRONIC FLOWS WITH ALL ZONES CALLING FOR HEAT SIMULTANEOUSLY.
2. PROVIDE T&B REPORTING PER SPEC.
3. RECORD BALANCING VALVE SETTINGS & GPMS ON TAG AT ALL BALANCING VALVES.



1 M208 BOILER PIPING SCHEMATIC
SCALE: N.T.S.

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ELECTRICAL LEGEND

POWER LEGEND

- PANEL BOARD
- JUNCTION BOX
- JUNCTION BOX WITH EQUIPMENT CONNECTION
- JUNCTION BOX WITH CONNECTION TO RANGE HOOD FAN-LIGHT
- MOTOR WITH THERMAL OVERLOAD MOUNTED ADJACENT TO MOTOR
- SPECIAL PURPOSE RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE BOTTOM SWITCHED
- DUPLEX RECEPTACLE ABOVE COUNTER
- DOUBLE DUPLEX RECEPTACLE (QUADPLEX)
- WP — WEATHERPROOF DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION AND IN-USE TYPE COVER
- GF — GROUND FAULT RECEPTACLE
- T — TECH RECEPTACLE WITH USB PORTS
- H — RECEPTACLE FOR RANGE HOOD
- D — GFI RECEPTACLE UNDERCOUNTER FOR DISPOSAL
- DW — GFI RECEPTACLE FOR DISHWASHER
- MW — RECEPTACLE IN CABINET FOR MICROWAVE
- C — CEILING MOUNTED RECEPTACLE
- TV — FOUR-GANG RECESSED TV BOX WITH RECEPTACLE, CABLE TV OUTLET, AND DATA OUTLET MOUNTED AT 5'-0" AFF (CABLE AND DATA BY OWNER)
- FLOOR-MOUNTED DUPLEX RECEPTACLE (FLUSH)
- FLOOR-MOUNTED DOUBLE DUPLEX RECEPTACLE (FLUSH)
- FB — RECESSED FLOOR BOX WITH RECEPTACLE, TV, DATA, AND A/V CONNECTIONS (FLUSH). (TV, DATA, AND A/V BY OWNER).
- FIXED MULTI-OUTLET ASSEMBLY
- 60/40 — DISCONNECT SWITCH. 60 AMP DISCONNECT WITH 40 AMP FUSE.
- MAGNETIC STARTER
- 1 — MOTOR (NUMERAL DENOTED HORSEPOWER).
- G — GENERATOR
- CIRCUIT BREAKER
- HOMERUN. ARROWS DENOTE THE NUMBER OF CIRCUITS AND SLASH MARKS DENOTE THE NUMBER OF #12 CURRENT-CARRYING CONDUCTORS (PLUS GROUND) IN 3/4" CONDUIT RACEWAY OR CABLE ASSEMBLY. NO SLASHES INDICATES (2)#12 AWG, (1)#12 AWG GROUND IN 3/4" CONDUIT.
- CONDUIT OR CABLE ASSEMBLY TURNING UP.
- CONDUIT OR CABLE ASSEMBLY TURNING DOWN.
- RACEWAY OR CABLE ASSEMBLY INSTALLED CONCEALED.
- RACEWAY INSTALLED EXPOSED.

LIGHTING LEGEND

- 12 A b — LIGHTING FIXTURE. "A" DENOTES LIGHTING FIXTURE TYPE PER SCHEDULE. "b" SUBSCRIPT DENOTES SWITCH CONTROL. "12" NUMERAL INDICATES CIRCUIT NUMBER.
- LIGHTING FIXTURE WITH EMERGENCY POWER
- SURFACE OR PENDENT MOUNTED DOWNLIGHT
- WALL MOUNTED LIGHTING FIXTURE
- WALL-MOUNTED ILLUMINATED EXIT SIGN WITH EMERGENCY BATTERY
- EXIT SIGN WITH EMERGENCY BATTERY
- RECESSED DOWNLIGHT
- EMERGENCY BATTERY WITH DOUBLE HEAD LIGHTING FIXTURE
- TRACKING LIGHTING SYSTEM WITH LIGHTING FIXTURE
- EMERGENCY CALL SYSTEM DOME LIGHT
- EMERGENCY CALL SYSTEM PULL STATION
- AP — EMERGENCY CALL ANNUNCIATOR PANEL
- CR — ACCESS CONTROL SYSTEM CARD READER

ABBREVIATIONS

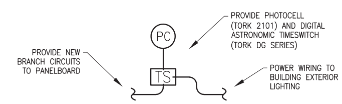
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
CMU	CONCRETE MASONRY UNIT
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DHW	DOMESTIC HOT WATER
(E)	EXISTING EQUIPMENT, RETAIN RACEWAYS, JUNCTION BOXES, AND BRANCH CIRCUIT WIRING.
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EMS	ENERGY MANAGEMENT SYSTEM
ETR	EXISTING TO REMAIN
FC	FAN COIL
FPC	FIRE PROTECTION CONTRACTOR
FT	FEET
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
IFP	INTELLIGENT FIELD PANEL
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG PANEL
MAU	MAKEUP AIR UNIT
MC	MECHANICAL CONTRACTOR
NTS	NOT TO SCALE
OH	OVERHEAD
PC	PLUMBING CONTRACTOR
PROVIDE	SUPPLY AND INSTALL
RTU	ROOF TOP UNIT
SA	SURGE ARRESTOR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UOS	UNLESS OTHERWISE SPECIFIED
UV	UNIT VENTILATOR
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF
	CONNECT TO EXISTING
T	THERMOSTAT
T	VOLTAGE TRANSFORMER (120V/24V)
	REVISION TRIANGLE
CCTV	CLOSED CIRCUIT SECURITY TV OUTLET
TV	CABLE TELEVISION OUTLET
	VOICE/DATA OUTLET (1)RJ45 VOICE & (1) RJ45 DATA
	TELEPHONE OUTLET (1) RJ11
	DATA OUTLET (1) RJ45
	CABLE TV TERMINAL CABINET & TELE INTERFACE UNIT
I	INTERCOM W/ DOOR RELEASE
I V	INTERCOM W/ VISUAL & DOOR RELEASE
IM	INTERCOM MASTER
	PUSH BUTTON
CH	CHIME
BS	BASE STATION
WA	WATER ALARM
PS	POWER SUPPLY FOR DOOR RELEASE
DR	ELECTRIC DOOR RELEASE
DSC	DOCUMENT STORAGE CABINET
DH	DOOR HOLDER
KP	KEY PAD
CR	CARD READER
CB	CALL BOX
ATS	AUTOMATIC TRANSFER SWITCH
PC	PHOTO CELL
TS	TIME SWITCH
	ELECTRIC METER
S	SINGLE POLE SWITCH MOUNTED 4'-0".
S_3	THREE WAY SWITCH MOUNTED 4'-0".
S_4	FOUR WAY SWITCH MOUNTED 4'-0".
S_M	MOTOR THERMAL SWITCH MOUNTED 4'-0".
S_D	DIMMER SWITCH
OC	OCCUPANCY SENSOR. WALL-MOUNTED WITH INTERGAL SWITCH.
OC_3	OCCUPANCY SENSOR WALL MOUNTED WITH TWO (2) INTERGAL SWITCHES.
	GROUND CONNECTION
	LIGHTNING STRIKE AIR TERMINATION

GENERAL ELECTRICAL NOTES:

1. GENERAL CONDITIONS & SPECIFICATIONS: THE GENERAL CONDITIONS, AND SPECIFICATIONS ARE PART OF THIS WORK. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND BE FAMILIAR WITH THESE CONDITIONS & SPECIFICATIONS.
2. CODES AND ORDINANCES: INSTALLATION OF THE SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NATIONAL ELECTRIC CODE, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES.
3. REQUIREMENTS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS (NO PERMIT FEE), LICENSES, AND CERTIFICATES.
4. DESIGN: EQUIPMENT AND ACCESSORIES NOT SPECIFICALLY DESCRIBED OR IDENTIFIED BY MANUFACTURER'S CATALOG NUMBERS SHALL BE DESIGNED IN CONFORMITY WITH NEC, IEEE, UL OR OTHER APPLICABLE TECHNICAL STANDARDS, AND SHALL HAVE NEAT AND FINISHED APPEARANCE.
5. INSTALLATION: ERECT EQUIPMENT IN NEAT AND WORKMANLIKE MANNER; INSTALL SO THAT CONNECTING AND DISCONNECTING OF EQUIPMENT AND ACCESSORIES CAN BE MADE READILY AND SO THAT ALL PARTS ARE EASILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER AND THE BEST STANDARD PRACTICE FOR THIS TYPE OF WORK.
6. BEST PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY FITTING, CONNECTION, OR APPLIANCE. THIS CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.
7. EQUIPMENT LOCATION: THE E.C. SHALL VERIFY THE LOCATIONS AND MOUNTING HEIGHTS OF ALL EQUIPMENT AND SWITCHES, AND THE EXACT ROUTING OF ALL CONDUIT AND WIRING, WITH THE OWNER'S REPRESENTATIVE IN THE FIELD, PRIOR TO COMMENCING ANY WORK. ANY CONFLICTS WITH LOCATIONS, OR PROBLEMS ENCOUNTERED WITH ROUTING, SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
8. MATERIALS: ALL MATERIALS, FIXTURES AND EQUIPMENT SHALL BE NEW WITHOUT IMPERFECTIONS AND SHALL BE DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL. WHEREVER POSSIBLE, ALL TRIM, ACCESSORIES AND PARTS SHALL BE OF THE SAME MANUFACTURER AS THE RELATED EQUIPMENT AND FIXTURES.
9. GENERAL COORDINATION: EXAMINE ALL DRAWINGS AND OTHER SECTIONS OF THE SPECIFICATIONS FOR REQUIREMENTS WHICH AFFECT THE WORK OF THIS SECTION. COORDINATE WORK WITH THAT OF OTHER TRADES AFFECTING, OR AFFECTED BY, WORK OF THIS SECTION. COOPERATE WITH OTHER TRADES TO ENSURE THE STEADY PROGRESS OF THE WORK.
10. PROTECTION OF EQUIPMENT AND MATERIALS: RESPONSIBILITY FOR CARE AND PROTECTION OF ALL MATERIALS AND ELECTRICAL WORK RESTS WITH THIS CONTRACTOR AT ALL TIMES UNTIL IT HAS BEEN APPROVED.
11. GUARANTEE: ALL NEW COMPONENTS OF THE INSTALLATION SHALL BE GUARANTEED IN WRITING BY THIS CONTRACTOR TO BE FREE FROM DEFECTS OF MANUFACTURE AND INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF WRITTEN ACCEPTANCE BY THE ENGINEER. ANY DEFECTS FOUND SHALL BE REPAIRED BY THE ELECTRICAL CONTRACTOR AT THEIR OWN EXPENSE.
12. NOTIFICATION: THE E.C. SHALL NOTIFY THE ENGINEER UPON: (1) COMPLETION OF ALL ROUGH WIRING WORK, BEFORE CLOSURE OF ANY TRENCHES, OPEN WALL CAVITIES OR CHASES. (2) UPON "SUBSTANTIAL COMPLETION" OF ALL SYSTEMS. AFTER "SUBSTANTIAL COMPLETION", THE ENGINEER WILL PREPARE A PUNCH LIST OF ITEMS TO BE CORRECTED. THE E.C. SHALL CORRECT ANY DEFICIENCIES FOUND PROMPTLY, AT HIS/HER OWN EXPENSE.
13. FINAL COMPLETION: THE WORK SHALL NOT BE CONSIDERED COMPLETE UNTIL THE PUNCH LIST IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND ALL FINAL INSPECTIONS HAVE BEEN COMPLETED.

EXISTING EQUIPMENT

(bold solid line)	BOLD SOLID DENOTES NEW EQUIPMENT UNLESS OTHERWISE NOTED OR INDICATED.
(light solid line)	LIGHT SOLID DENOTES EXISTING EQUIPMENT TO REMAIN UNLESS OTHERWISE NOTED OR INDICATED.
(bold dashed line)	BOLD DASHED DENOTES EXISTING EQUIPMENT TO REMOVE AND DISPOSE OF UNLESS OTHERWISE NOTED OR INDICATED.
(X)	EXISTING DEVICE TO BE REMOVED & DISPOSED AND CIRCUIT PULLED BACK TO NEXT ACTIVE OUTLET OR BACK TO PANEL.
(E)	EXISTING ITEM TO REMAIN (ETR).
(XN)	EXISTING ITEM TO BE REMOVED AND NEW ITEM AS SPECIFIED INSTALLED ON EXISTING OUTLET, RECONNECT TO EXISTING CIRCUIT.
(XE)	EXISTING ITEM TO BE REMOVED, OUTLET BLANKED, AND CIRCUIT EXTENDED TO NEW ITEM AS SHOWN.
(XR)	EXISTING ITEM TO BE REMOVED AND RELOCATED.
(XL)	NEW LOCATION OF EXISTING RELOCATED ITEM.
(XM)	EXISTING ITEM TO BE REMOVED, WIRING PROTECTED, AND ITEM REINSTALLED IN EXISTING LOCATION.



1 / E001 — BUILDING EXTERIOR LIGHTING CONTROL
SCALE: NTS

Sterling Associates Incorporated Architects

REVISIONS: 99% CDs

NORIAN / SIANI ENGINEERING, INC.

PROJECT: ARLINGTON CENTRAL SCHOOL RENOVATION
NUMBER: 1805.00
DATE: 04/10/2019
DRAWN BY:
CHECKED BY: GAC

DRAWING: ELECTRICAL LEGEND, NOTES, & DETAILS
DRAWING NUMBER: E001

PANELBOARD MDP: 1,600A MB, (8) 3-POLE SPACES — MAIN DISTRIBUTION PANEL "MDP"

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: SURFACE MOUNT, BOLT-ON BREAKERS | IR 100 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 3	140.80	GROUND FLOOR - BOILER RM PANELS - PP1 & "LPH"	600	3	
4 - 6	-	TENANT METERS - PANELS - "2N", "2S", T1, T2, T4, & T5	600	3	
7 - 9	21.50	GROUND & 1ST FLOOR - LIGHTING PANELS - "LPS" & "S1"	400	3	
10 - 12	0.00	GROUND FLOOR - LIGHTING PANEL - "LPA"	300	3	
13 - 15	7.85	ARL CTR ARTS - PANELS - PPAC & PPA4	225	3	
16 - 18	0.00	2ND FLOOR - LIGHTING PANEL - "LPC"	275	3	
19 - 24	-	- SPACE -		6	
TOTAL KVA	170.15			24	

PANELBOARD PP1: 600A MLO, 84 SPACE — BOILER ROOM POWER PANEL

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, SURFACE MOUNT, BOLT ON BREAKERS | IR 65 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 3	16.27	ELEVATOR (25 HP)	175	3	
4 - 6	0.00	LIGHTING PANEL "H"	100	3	
7 - 9	54.04	KITCHEN PANEL - "KP"	200	3	
10	0.03	MECH RM UNIT HEATER & EXHAUST FAN - "UH-1" & "EF-2"	20	1	
11	0.54	BOILER ROOM RECEPTACLES	20	1	GFCI
12	0.72	BOILER ROOM RECEPTACLES	20	1	GFCI
13	0.36	AUTOMATIC CHEMICAL FEED RECEPTACLES - "ACF-1"	20	1	
14		MOTORIZED DAMPER TRANSFORMERS	20	1	
15		BOILER - "B-1"	20	1	
16	1.66	BOILER PUMP - "BP-1"	25	1	
17		BOILER - "B-2"	20	1	
18	1.66	BOILER PUMP - "BP-2"	25	1	
19		BOILER - "B-3"	20	1	
20	1.66	BOILER PUMP - "BP-3"	25	1	
21 - 23	3.64	SPACE HEATING PUMP - "P-1"	35	3	
24 - 26	3.64	SPACE HEATING PUMP - "P-2"	35	3	
27 - 29	12.92	CONDENSER LOOP PUMP - "P-3"	100	3	
30 - 32	12.92	CONDENSER LOOP PUMP - "P-4"	100	3	
33	0.86	DHW TANK PUMP - "P-5"	20	1	
34	0.86	DHW TANK PUMP - "P-6"	20	1	
35	0.16	DHW RECIRCULATION PUMPS - "DHWR-1" & "UDHWR-1"	20	1	
36 - 38	3.64	COOLING TOWER	35	3	
39	0.36	EXTERIOR SERVICE RECEPTACLES	20	1	
40 - 42	7.07	AIR HANDLER - 1ST FLR LOBBY - "HV-4"	45	3	
43	0.03	PUMP FOR HEATING COIL HC-1 - "P-7"	20	1	
44	0.06	PUMP FOR HEATING COIL HC-2 - "P-8"	20	1	
45 - 47	5.10	AIR HANDLER - "HV-1"	40	3	
48 - 50	12.63	AIR HANDLER - "HV-2"	80	3	
		SPARE	20	1	GFCI
		SPARE	20	1	GFCI
		SPARE	20	1	GFCI
51 - 84		- SPACE -		31	
TOTAL KVA	140.80			84	

LIGHTING PANEL "LPH": 225A MLO, 42 SPACE

VOLTS 208/120V | PH/WIRE 3/4 | REMARKS: COPPER BUS, SURFACE MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 32		PROVIDE (32) 20AMP, 1P CIRCUIT BREAKERS	20	32	
33 - 42		- SPACE -		10	
TOTAL KVA	0.00			42	

LIGHTING PANEL "LPS": 100A MLO, 30 SPACE

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 22		PROVIDE (22) 20AMP, 1P CIRCUIT BREAKERS	20	22	
23 - 30		- SPACE -		8	
TOTAL KVA	0.00			30	

LIGHTING PANEL "S1": 225A MLO, 42 SPACE

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 3	7.07	AIR HANDLER - "HV-3"	45	3	
4	0.03	PUMP FOR HEATING COIL HC-4 - "P-9"	20	1	
5	0.25	SUPPLY FAN - SF-2	20	1	
6	0.90	RECEPTACLES	20	1	GFCI / AFCI
7	0.36	RECEPTACLES	20	1	GFCI / AFCI
8	0.36	RECEPTACLES	20	1	GFCI / AFCI
9	0.36	RECEPTACLES - BATHROOM 123 & 124	20	1	GFCI / AFCI
10	0.36	RECEPTACLES - GENERAL AREA TV & A/V BOXES	20	1	GFCI / AFCI
11	0.90	RECEPTACLES	20	1	GFCI / AFCI
12	0.11	BATHROOM EXHAUST FANS - EF-1 & EF-4	20	1	
13	0.36	RECEPTACLES - BATHROOM 114 & 126	20	1	GFCI / AFCI
14		DOOR OPENERS	20	1	
15	0.10	CABINET UNIT HEATERS - CHU-3 & CUH-4	20	1	
16	0.25	SUPPLY FAN - SF-1	20	1	
17 - 19	2.89	AIR HANDLER - "HV-5"	20	3	
20 - 22	7.07	AIR HANDLER - "HV-13"	45	3	
23	0.03	PUMP FOR HEATING COIL HC-13 - "P-11"	20	1	
24	0.11	EXHAUST FANS - EF-1 & EF-5	20	1	
25		FIRST FLOOR LIGHTING	20	1	
26		FIRST FLOOR LIGHTING	20	1	
27 - 42		PROVIDE (16) 20AMP, 1P CIRCUIT BREAKERS	20	16	
TOTAL KVA	21.50			42	

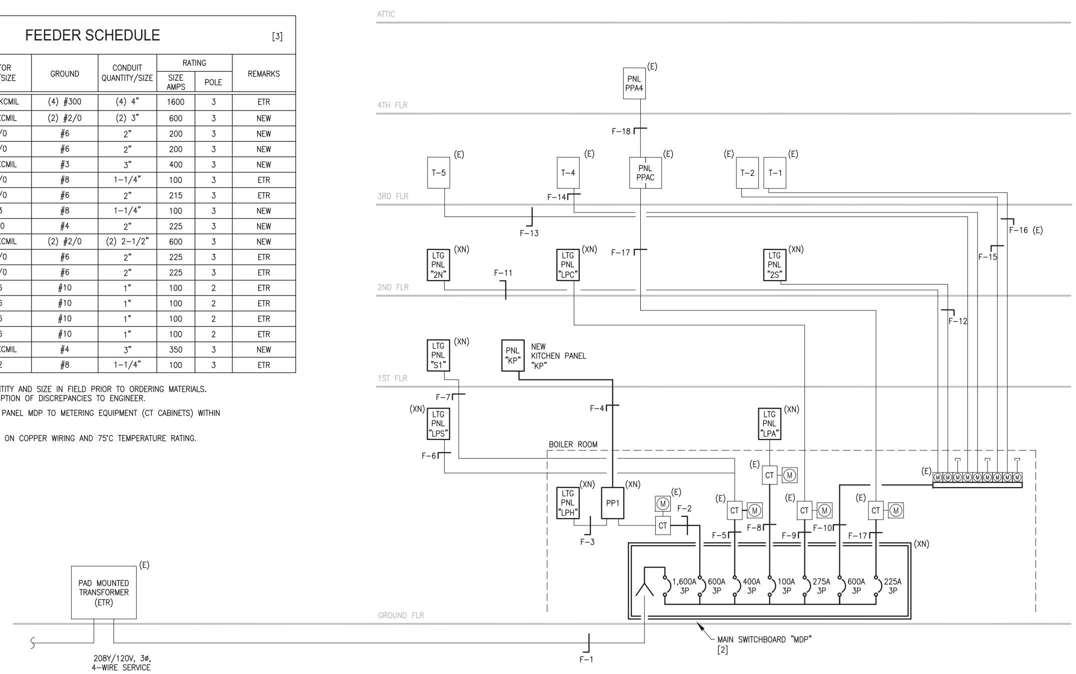
FEEDER SCHEDULE [3]

DESIGNATION	CONDUCTOR QUANTITY/SIZE	GROUND	CONDUIT QUANTITY/SIZE	RATING SIZE AMPS	RATING POLE	REMARKS
F-1	(16) 500 KCMIL	(4) #300	(4) 4"	1600	3	ETR
F-2	(8) 350 KCMIL	(2) #2/0	(2) 3"	600	3	NEW
F-3	(4) #3/0	#6	2"	200	3	NEW
F-4	(4) #3/0	#6	2"	200	3	NEW
F-5	(4) 500 KCMIL	#3	3"	400	3	NEW
F-6	(4) #3/0	#8	1-1/4"	100	3	ETR
F-7	(4) #3/0	#6	2"	215	3	ETR
F-8	(4) #3	#8	1-1/4"	100	3	NEW
F-9	(3) 4/0	#4	2"	225	3	NEW
F-10	(8) 350 KCMIL	(2) #2/0	(2) 2-1/2"	600	3	NEW
F-11	(4) #3/0	#6	2"	225	3	ETR
F-12	(4) #3/0	#6	2"	225	3	ETR
F-13	(3) #6	#10	1"	100	2	ETR
F-14	(3) #6	#10	1"	100	2	ETR
F-15	(3) #6	#10	1"	100	2	ETR
F-16	(3) #6	#10	1"	100	2	ETR
F-17	(4) 250 KCMIL	#4	3"	350	3	NEW
F-18	(4) #2	#8	1-1/4"	100	3	ETR

[1] VERIFY CONDUCTOR QUANTITY AND SIZE IN FIELD PRIOR TO ORDERING MATERIALS. PROVIDE WRITTEN DESCRIPTION OF DISCREPANCIES TO ENGINEER.

[2] REPLACE FEEDERS FROM PANEL MDP TO METERING EQUIPMENT (CT CABINETS) WITHIN BOILER ROOM.

[3] CONDUCTER SIZES BASED ON COPPER WIRING AND 75°C TEMPERATURE RATING.



1 E002 ELECTRICAL ONE-LINE DIAGRAM
SCALE: NOT TO SCALE

LIGHTING PANEL "LPA": 100A MLO, 42 SPACE

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 2		PROVIDE (1) 40AMP, 2P CIRCUIT BREAKERS	40	2	
3 - 24		PROVIDE (22) 20AMP, 1P CIRCUIT BREAKERS	20	22	
24 - 42		- SPACE -		18	
TOTAL KVA	0.00			42	

Lighting Panel "LPC": 225A MLO, 30 SPACE

VOLTS 208V ONLY | PH/WIRE 3/3 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 6		PROVIDE (2) 70AMP, 3P CIRCUIT BREAKERS	70	6	
7 - 10		PROVIDE (1) 40AMP, 3P CIRCUIT BREAKERS	40	3	
11 - 13		PROVIDE (1) 30AMP, 3P CIRCUIT BREAKERS	30	3	
14 - 30		- SPACE -		18	
TOTAL KVA	0.00			30	

LIGHTING PANEL "2S": 225A MLO, 30 SPACE — 2ND FLOOR SOUTH "2S"

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 3	8.69	AIR HANDLER - "HV-7"	50	3	
4 - 24		PROVIDE (27) 20AMP, 1P CIRCUIT BREAKERS	20	27	
TOTAL KVA	8.69			30	

Panel "KP": 200A MLO, 42 SPACE

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 3	2.06	MAKE-UP AIR UNIT - "MAU-1"	20	3	
4	0.28	WALK IN REFRIGERATOR - FAN COIL UNIT "FCU-#"	20	1	
5 - 6	1.93	WALK IN REFRIGERATOR - CONDENSING UNIT "CU-#"	20	2	
7	1.20	WALK IN REFRIGERATOR - LIGHTS & DOOR HEATER	20	1	
8	0.54	DRY GOOD STORAGE RECEPTACLES	20	1	GFCI / AFCI
9	0.18	OFFICE DESK RECEPTACLE	20	1	GFCI / AFCI
10	1.18	REACH-IN FREEZER	20	1	
11	1.72	ICE MACHINE	20	1	
12	0.96	CONVECTION OVEN	20	1	
13 - 15	9.98	STEAMER	60	3	
16 - 18	10.19	DISH WASHER	60	3	
19	0.19	DISH WASHER EXHAST HOOD - "EF-6"	20	1	
20	0.88	SANDWHICH TOP REFRIGERATOR	20	1	GFCI / AFCI
21 - 22	6.24	COFFEE BREWER	30	2	
23 - 24	2.56	DROP-IN HOT WELL	20	2	
25	0.47	DROP-IN COLD WELL	20	1	
26	1.08	RECEPTACLES - HOT WELL / COLD WELL	20	1	GFCI / AFCI
27	0.90	RECEPTACLES - CLEAN WARES STORAGE	20	1	GFCI / AFCI
28	0.54	RECEPTACLES	20	1	GFCI / AFCI
29	0.54	RECEPTACLES - WEST WALL	20	1	GFCI / AFCI
30	0.36	RECEPTACLES	20	1	GFCI / AFCI
31 - 33	1.62	KITCHEN HOOD	15	3	
34		KITCHEN HOOD CONTROL	15	1	
35	0.18	RECEPTACLES - COFFEE COUNTER	20	1	GFCI / AFCI
36 - 38	7.63	AIR HANDLER - "HV-4"	50	3	
39	0.03	PUMP FOR HEATING COIL HC-4 - "P-10"	20	1	
40	0.56	PUMP FOR MAKE-UP AIR UNIT MAU-1 - "P-12"	25	1	
41		LIGHTING	20	1	GFCI
42		SPARE	20	1	GFCI
TOTAL KVA	53.99			42	

LIGHTING PANEL "2N": 225A MLO, 30 SPACE — 2ND FLOOR NORTH "2N"

VOLTS 120/208V | PH/WIRE 3/4 | REMARKS: COPPER BUS, FLUSH MOUNT, BOLT ON BREAKERS | IR 42 KAIC

CIRC. NO.	KVA	DESCRIPTION	BREAKERS AMPS	POLES	REMARKS
1 - 3	8.69	AIR HANDLER - "HV-6"	50	3	
4 - 24		PROVIDE (27) 20AMP, 1P CIRCUIT BREAKERS	20	27	
TOTAL KVA	8.69			30	

Sterling Associates Incorporated Architects

NORIAN / SIANI ENGINEERING, INC.

REVISIONS: 99% CDs

DATE: 04/10/2019
NUMBER: 1805.00
PROJECT: ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWN BY:
CHECKED BY: GAC

DRAWING: ELECTRICAL ONE-LINE DIAGRAM & LOAD-CENTER SCHEDULES
DRAWING NUMBER: E002

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMP QTY	LAMP TYPE	LAMP CCT	MOUNTING	Voltage	WATTS	Control	Finish
C1	EcoSense	L35-I-12-60-35-80-MULT-120	1	600lm LED	35K	Cove	UNV	6	Dim 0-10v	Aluminum
C2	EcoSense	L35-I-48-60-35-80-MULT-120	1	600lm LED	35K	Cove	UNV	6	Dim 0-10v	Aluminum
P1	ILP	WTZ-30WLED-UNIV-50-RAFL	1	3000lm LED	35K	Pendant	UNV	30	Dim 0-10v	White
P2	MODERNA	P400000-009-30	1	670lm LED	30K	Pendant	UNV	9	Dim 0-10v	Brushed Nickel
P4-4	Peerless	VMM9 ID1350LMF 4FT MSL4 Volt DARK ZT SCT 80CRI 35K C041	1	5000lm LED	35K	Pendant	UNV	49	Dim 0-10v	White
P4-8	Peerless	VMM9 ID1350LMF 8FT MSL8 VOlt DARK ZT SCT 80CRI 35K C041	1	10000lm LED	35K	Pendant	UNV	98	Dim 0-10v	White
R1	Lithonia	LDN4 35/15 LO4AR LD	1	1500lm LED	35K	Recessed	UNV	20	Dim 0-10v	Diffuse Alzak
R2	Lithonia	2BLT2 20L ADP LP835 MVOLT EZ1	1	2000lm LED	35K	Recessed	UNV	20	Dim 0-10v	White
R3	Mercury	MLS3-M1-4'-625-35K-HTA-1%-U (in pattern)	1	2400lm LED	35K	Surface Ceiling	UNV	24	Dim 0-10v	White
R4	Cooledge	SIS-FM-10.5x10.5-LF-DIM	1	9370lm LED	35K	Recessed	UNV	154	Dim 0-10v	White
R5	Cooledge	SIS-FM-7x7-LF-DIM	1	4200lm LED	35K	Recessed	UNV	69	Dim 0-10v	White
R6	Cooledge	SIS-FM-2.5x9.5-LF-DIM	1	4156lm LED	35K	Recessed	UNV	142	Dim 0-10v	White
R7	Lithonia	2WRTL XX L24 3000LM XX AFL XX 35K 80CRI	1	2000lm LED	35K	Recessed	UNV	33	Dim 0-10v	White
R8	Lumenwerx	CLUC03-WRO-MF01-LED	1	750lmLED	35K	Recessed	UNV	6	Dim 0-10v	White
S1	Juno	JSF 13IN 18LM 35K 90CRI MVOLT ZT WH	1	1800lm LED	35K	Surface Ceiling	UNV	20	Dim 0-10v	White
S2	Brownlee	2340-15-C24LED-NAL-35K-DIM	1	1800lm LED	35K	Surface Ceiling	UNV	49	Dim 0-10v	Nat'l Linen/Burlap Ivory BP1
S3	XAL	VELA-DIR-RD-SUR-WH-OP-35K-C80-UNV-010V-03000L-DM2FT	1	3000lm LED	35K	Surface Ceiling	UNV	27	Dim 0-10v	Nat'l Linen/Blue Bonnet 405
S4	XAL	VELA-DIR-RD-SUR-WH-OP-35K-C80-UNV-010V-03000L-DM1.5FT	1	2000lm LED	35K	Surface Ceiling	UNV	20	Dim 0-10v	Nat'l Linen/Orchid # 1003
S5	XAL	VELA-DIR-RD-SUR-WH-OP-35K-C80-UNV-010V-03000L-DM2FT	1	3000lm LED	35K	Surface Ceiling	UNV	27	Dim 0-10v	White
S6	V2 Lighting	NLRM-JND-V-1280-35-R4-XX	1	1000lm LED	35K	Surface Ceiling	UNV	12	Dim 0-10v	T.B.D.
S7	Lithonia	CLX L48 3000LM SEF FDL MVOLT 35K 80CRI WH	1	3000lm LED	35K	Surface Ceiling	UNV	20	Dim 0-10v	White
S8	Juno	JSFSQ 14IN 18LM 35K 90CRI MVOLT ZT WH	1	1800lm LED	35K	Surface Ceiling	UNV	20	Dim 0-10v	White
S9	V2 Lighting	NLSM-JND-V-1080-35-L6-NN-Finish	1	1000lm LED	35K	Surface Ceiling	UNV	12	Dim 0-10v	T.B.D.
S10	Mercury	LW4-4-3800-35K-HTA-1%-UNI	1	3800lm LED	35K	Surface Wall	UNV	32	Dim 0-10v	White
W1	Winona	WLAWC801 INT 12LONG AL1A1 35K MVOLT-SGW	1	2000lm LED	35K	Surface Wall	UNV	27	Dim 0-10v	White
W2	Bartco	BSS501-4-35-D-L-9"-WBR-SN-WH	1	2000lm LED	35K	Surface Wall	UNV	27	Dim 0-10v	White
W3	Focalpoint	FDALW-MG-750LF-35K-UNV-LD1-WM-WH-6'	1	4500lm LED	35K	Surface Wall	UNV	48	Dim 0-10v	White
W4	Focalpoint	FDALW-MG-750LF-35K-UNV-LD1-WM-WH-4'	1	3000lm LED	35K	Surface Wall	UNV	32	Dim 0-10v	White
W5	Brownlee	5176-24-BN-H16LED-WA-35K	1	1000lm LED	35K	Surface Wall	UNV	16	Dim 0-10v	White
W6	Brownlee	2050-14-WH-B12-WHA-30K	1	800lm LED	35K	Surface Wall	UNV	12	Dim 0-10v	White
W7	Carson	gooseneck								
W8	Belfer Lighting	WS 6215-LED-35-90-WP	1	3000lm LED	35K	Surface Wall	UNV	27.5	Dim 0-10v	White
UC1	Juno	UPS22-30K-90CRI-WH	1	731lm LED	30K	Undercabinet	120	10	Non Dim	White
EX1	Lithonia	EDG-W-1R-120/277-ELN				Universal		2		White
EX2	Lithonia	EDG-W-2RMR-120/277-ELN				Universal		2		White

EGRESS & EMERGENCY LIGHTING FIXTURE SCHEDULE

[1][2][3]

DWG ID	DESCRIPTION	MANUFACTURER	MODEL NO.	MOUNTING	VOLTAGE	LAMP WATTS	LUMENS	LUMENS/ WATT	COLOR TEMPERATURE	FIXTURE COLOR	NOTES
W9	OUTDOOR SERVICE LIGHT	STONECO	ROUGHLYTE, VWXL-32-HFL-EB-1	SURFACE WALL	120	32	1200	37.5	4000K	GRAPHITE	OUTDOOR LED SERVICE, WET RATED FIXTURE, PROVIDE (1) LED BULB RATED FOR OUTDOOR USE AND TEMPERATURES FOR APPLICATION
X1	EXIT SIGN	BARRON EXITRONIX	GVEX-U-S-WB-WH	UNIVERSAL	120	3.8	–	–	–	WHITE	LED FIXTURE, GREEN LETTERING, UNIVERSAL DIRECTION INDICATORS, W/ BATTERY, MANUAL TEST OPTION, DOUBLE FACE UNLESS INDICATED OTHERWISE
X2	ADA EXIT SIGN	BARRON EXITRONIX	CTG700E-WB-WH-S/ADA	UNIVERSAL	120	3.8	–	–	–	WHITE	LED FIXTURE, GREEN LETTERING, STD UNIVERSAL ADA SYMBOL, UNIVERSAL DIRECTION INDICATORS, W/ BATTERY, MANUAL TEST, DOUBLE FACE UNLESS INDICATED OTHERWISE
X3	EMERGENCY EGRESS LIGHTING	COOPER LIGHTING	SERIES CC8-MRT-SM	UNIVERSAL	120	28.0	–	–	–	WHITE	LED FIXTURE WITH INTEGRAL BATTERY, PHOTOCELL TEST SWITCH, PROVIDE (2) ACCESSORY RED LASER POINTERS FOR TESTING

[1] PROVIDE ENERGY STAR MODEL RATED FIXTURES IF AVAILABLE.
[2] PROVIDE LED FIXTURES UNLESS NOTED OTHERWISE.
[3] SEE PLANS AND NOTES FOR FIXTURE QUANTITIES.
[4] PROVIDE REMOTE BATTERY/INVERTER FOR EMERGENCY POWER.

LIGHTING CONTROL SEQUENCE

ROOM TYPE	ROOM DESCRIPTION	CONTROL CHARACTERISTICS	SEQUENCE
A	– EXISTING OFFICES – STORAGE AREAS	– OCCUPANCY CONTROL – NON-DIMMING – LINE VOLTAGE	SEQUENCE: MANUAL ON/OFF ON: LIGHTS MANUALLY TURNED ON AT KEYPAD ADJUST: N/A OFF: LIGHTS AUTOMATICALLY TURN OFF AFTER THE SPACE HAS BEEN VACANT FOR 10 MIN
B	– BATHROOMS	– OCCUPANCY CONTROL – NON-DIMMING – LINE VOLTAGE	SEQUENCE: SENSOR WILL TURN LIGHTS ON AUTOMATICALLY WHEN MOTION IS DETECTED ON: LIGHTS AUTOMATICALLY TURNED ON ADJUST: N/A OFF: LIGHTS AUTOMATICALLY TURN OFF AFTER THE SPACE HAS BEEN VACANT FOR 10 MIN
C	– PRIVATE OFFICES	– VACANCY CONTROL – DIMMING – LINE VOLTAGE	SEQUENCE: MANUAL ON/OFF AND DIMMING ON: LIGHTS MANUALLY TURNED ON AT KEYPAD ADJUST: LIGHT LEVEL CONTROL AT DIMMING SWITCH OFF: LIGHTS AUTOMATICALLY TURN OFF BY VACANCY SENSOR AFTER 30 MIN OF NO MOTION
D	– STAIRS – CORRIDORS – LOBBIES – COMMON AREAS	– OCCUPANCY SENSOR – OVERRIDE SWITCHES – DIMMING – PHOTO SENSORS – LOW VOLTAGE	SEQUENCE: SENSOR WILL TURN LIGHTS ON AUTOMATICALLY WHEN MOTION IS DETECTED ON: LIGHTS AUTOMATICALLY TURNED ON UPON OCCUPANCY DETECTION ADJUST: N/A OFF: LIGHTS AUTOMATICALLY TURN OFF BY OCCUPANCY SENSOR TIME-OUT OF 10 MIN PHOTOCELL: AUTOMATICALLY ADJUST LIGHT OUTPUT FOR DAYLIGHT ZONES, DIM TO APPROPRIATE LEVEL FOR EACH ZONE
E	– GROUND FLOOR CORRIDOR DISPLAY LIGHTING	– OCCUPANCY SENSOR – PRESET SCENES KEYPAD – DIMMING – LOW VOLTAGE	SEQUENCE: SELECT GROUPS OF LIGHTS TURN ON UPON LOCAL OCCUPANCY ON: LIGHTS AUTOMATICALLY TURNED ON VIA OCCUPANCY SENSOR ADJUST: LIGHT LEVEL AND SCENE CONTROL AT DIMMING SWITCH, MANUAL OVERRIDE OFF: LIGHTS AUTOMATICALLY TURN OFF BY VACANCY SENSOR AFTER 10 MIN OF NO MOTION
F	– OPEN OFFICE AREAS	– OCCUPANCY SENSOR – OVERRIDE SWITCHES – DIMMING – LOW VOLTAGE	SEQUENCE: MANUAL ON/OFF AND DIMMING ON: LIGHTS MANUALLY TURNED ON AT KEYPAD ADJUST: LIGHT LEVEL CONTROL AT DIMMING SWITCH OFF: LIGHTS AUTOMATICALLY TURN OFF BY VACANCY SENSOR AFTER 30 MIN OF NO MOTION
G	– LARGE STORAGE – 1ST FLOOR BATHROOM	– OCCUPANCY SENSOR – OVERRIDE SWITCHES – LOW VOLTAGE	SEQUENCE: SENSOR WILL TURN LIGHTS ON AUTOMATICALLY WHEN MOTION IS DETECTED ON: LIGHTS AUTOMATICALLY TURNED ON ADJUST: N/A OFF: LIGHTS AUTOMATICALLY TURN OFF AFTER THE SPACE HAS BEEN VACANT FOR 10 MIN
H	– COMMON AREAS – PASS THROUGH AREAS	– OCCUPANCY SENSOR – PRESET SCENES KEYPAD – DIMMING – PHOTO SENSORS – LOW VOLTAGE	SEQUENCE: SENSOR WILL TURN ON PATH-OF-EGRESS LIGHTS ONLY AUTOMATICALLY WHEN MOTION IS DETECTED ALL OTHER LIGHT FIXTURES OPERATE VIA MANUAL SCENE CONTROL AT KEYPAD ON: PATH-OF-EGRESS LIGHTS AUTOMATICALLY TURNED ON UPON OCCUPANCY DETECTION ADJUST: LIGHT LEVEL AND SCENE CONTROL AT KEYPAD, MANUAL OPERATION OFF: ALL LIGHTS AUTOMATICALLY TURN OFF BY OCCUPANCY SENSOR TIME-OUT OF 30 MIN PHOTOCELL: AUTOMATICALLY ADJUST LIGHT OUTPUT FOR DAYLIGHT ZONES, DIM TO APPROPRIATE LEVEL FOR EACH ZONE
J	– CONFERENCE ROOMS – ASSEMBLY ROOM	– OCCUPANCY SENSOR – PRESET SCENES KEYPAD – DIMMING – PHOTO SENSORS – LOW VOLTAGE	SEQUENCE: SENSOR WILL TURN ON PERIMETER CLOUD LIGHTS ONLY AUTOMATICALLY WHEN MOTION IS DETECTED ALL OTHER LIGHT FIXTURES OPERATE VIA MANUAL SCENE CONTROL AT KEYPAD ON: PATH-OF-EGRESS LIGHTS AUTOMATICALLY TURNED ON UPON OCCUPANCY DETECTION ADJUST: LIGHT LEVEL AND SCENE CONTROL AT KEYPAD, MANUAL OPERATION OFF: ALL LIGHTS AUTOMATICALLY TURN OFF BY OCCUPANCY SENSOR TIME-OUT OF 30 MIN PHOTOCELL: AUTOMATICALLY ADJUST LIGHT OUTPUT FOR DAYLIGHT ZONES, DIM TO APPROPRIATE LEVEL FOR EACH ZONE
K	– KITCHEN	– OCCUPANCY SENSOR – OVERRIDE SWITCHES – PHOTO SENSORS – LOW VOLTAGE	SEQUENCE: SENSOR WILL TURN LIGHTS ON AUTOMATICALLY WHEN MOTION IS DETECTED ON: LIGHTS AUTOMATICALLY TURNED ON UPON OCCUPANCY DETECTION ADJUST: LIGHT LEVEL CONTROL AT DIMMING SWITCH OFF: LIGHTS AUTOMATICALLY TURN OFF BY OCCUPANCY SENSOR TIME-OUT OF 30 MIN PHOTOCELL: AUTOMATICALLY ADJUST LIGHT OUTPUT FOR DAYLIGHT ZONES, DIM TO APPROPRIATE LEVEL FOR EACH ZONE
L	– EXTERIOR LIGHTING	– PHOTO SENSORS – TIMESWITCH – LINE VOLTAGE	SEQUENCE: COMBINATION OF PHOTO SENSOR AND TIME SWITCH WILL TURN LIGHTS ON AUTOMATICALLY ON: LIGHTS AUTOMATICALLY TURNED ON UPON BEING DARK OUTSIDE AND ON ASTRONOMIC SCHEDULE ADJUST: N/A OFF: LIGHTS AUTOMATICALLY TURN OFF UPON BEING DARK OUTSIDE AND ON ASTRONOMIC SCHEDULE PHOTOCELL: LIGHTS TURN OFF WHEN IT IS LIGHT OUTSIDE

LIGHTING CONTROLS SCHEDULE

(BASED ON ACUITY BRANDS)

DP1	DP1 PP20 POWER/RELAY PACK, AUTOMATIC CONTROL RELAYS, EXTERNAL FAULT PROTECTION
DP2	DP2 NPP16 D EFP POWER/RELAY PACK, OCCUPANCY CONTROLLED DIMMING, EXTERNAL FAULT PROTECTION
OS1	OS1 NCM PDT 9 AR LOW VOLTAGE CEILING MOUNT SENSOR, PASSIVE DUAL TECHNOLOGY, SMALL MOTION / STANDARD RANGE 360° LENS, AUXILIARY RELAY
OS2	OS2 NCM PDT 10 AR LOW VOLTAGE CEILING MOUNT SENSOR, PASSIVE DUAL TECHNOLOGY, LARGE MOTION / EXTENDED RANGE 360° LENS, AUXILIARY RELAY
PC1	PC1 NCM ADCX LOW VOLTAGE CEILING MOUNT SENSOR, PHOTOCONTROL W/ AUTO DIMMING
SLV	SLV NPODM XX LOW VOLTAGE PUSH-BUTTON WALLPOD, ON/OFF
SLVD	SLVD NPODM DX LOW VOLTAGE PUSH-BUTTON WALLPOD, MULTI-CHANNEL CONTROL, ON/OFF, RAISE/LOWER DIMMING
SLVS	SLVS NPODM 4S DX LOW VOLTAGE PUSH-BUTTON WALLPOD, 4 SCENE CONTROL, ON/OFF, RAISE/LOWER DIMMING
SPD3	SPD3 SPODM 3X DX LOW VOLTAGE PUSH-BUTTON WALLPOD, 3-WAY, RAISE/LOWER DIMMING
SO1	SO1 WSX PDT XX LINE-VOLTAGE, WALL SWITCH SENSOR, PASSIVE DUAL TECHNOLOGY OCCUPANCY CONTROLLED NON-DIMMING
SO2	SO2 WSX PDT DX LINE-VOLTAGE, WALL SWITCH SENSOR, PASSIVE DUAL TECHNOLOGY, OCCUPANCY CONTROLLED DIMMING

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NUMBER 1805.00
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
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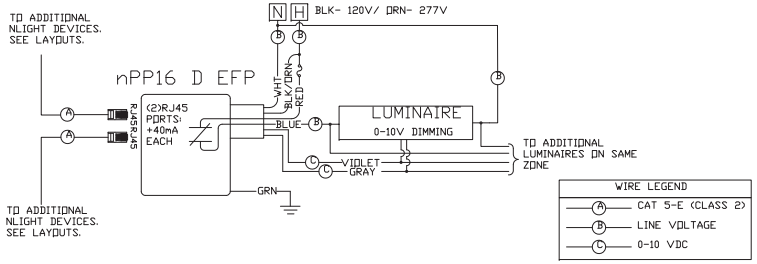
DRAWING
ELECTRICAL LIGHTING & LOAD CENTER SCHEDULES

DRAWING NUMBER
E003



1 E004 TYPICAL LIGHTING CONTROL – NO CONTROLS
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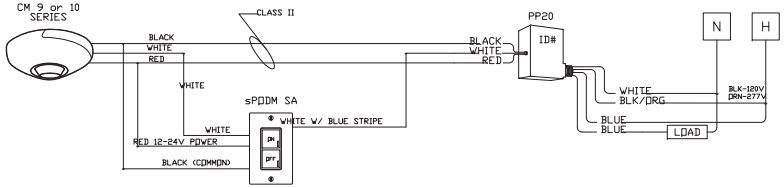

2 E004 TYPICAL LIGHTING CONTROL – MANUAL CONTROL WITH OCCUPANCY / VACANCY CONTROL
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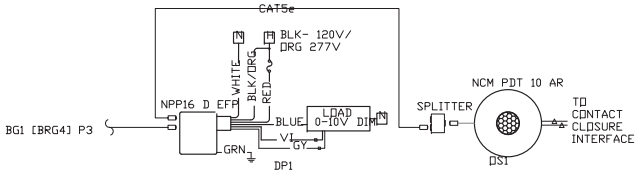

3 E004 TYPICAL LIGHTING CONTROL – OCCUPANCY / VACANCY CONTROL
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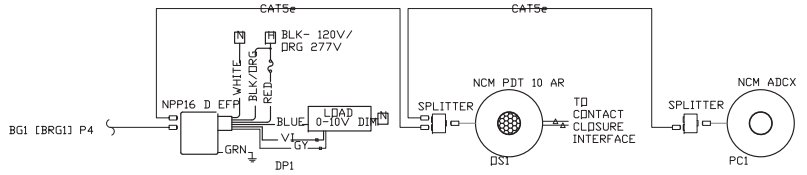

4 E004 TYPICAL LIGHTING CONTROL – OCCUPANCY / VACANCY & PHOTO-CELL CONTROL
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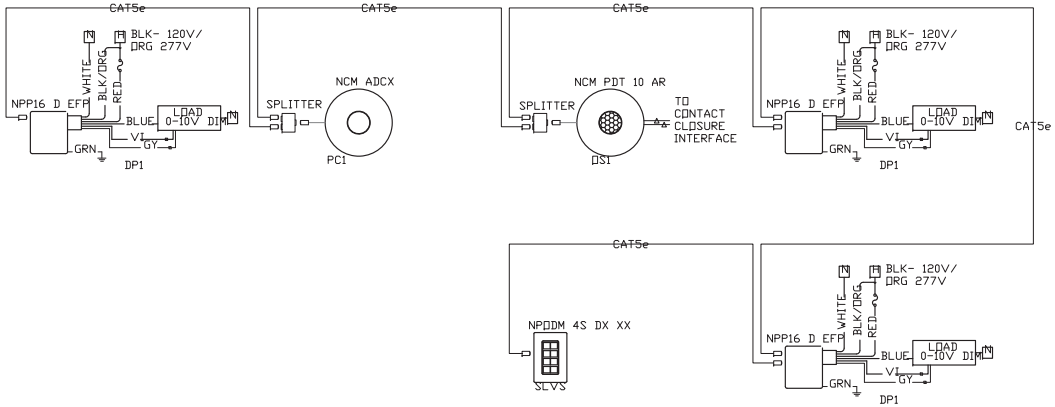

5 E004 TYPICAL LIGHTING CONTROL – MANUAL CONTROL WITH OCCUPANCY / VACANCY AND PHOTO-CELL CONTROL – MULTIPLE FIXTURES
SCALE: NOT TO SCALE

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ADRIAN J. SAHAI, ENGINEERING, INC.

DATE 04/10/2019
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PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWN BY
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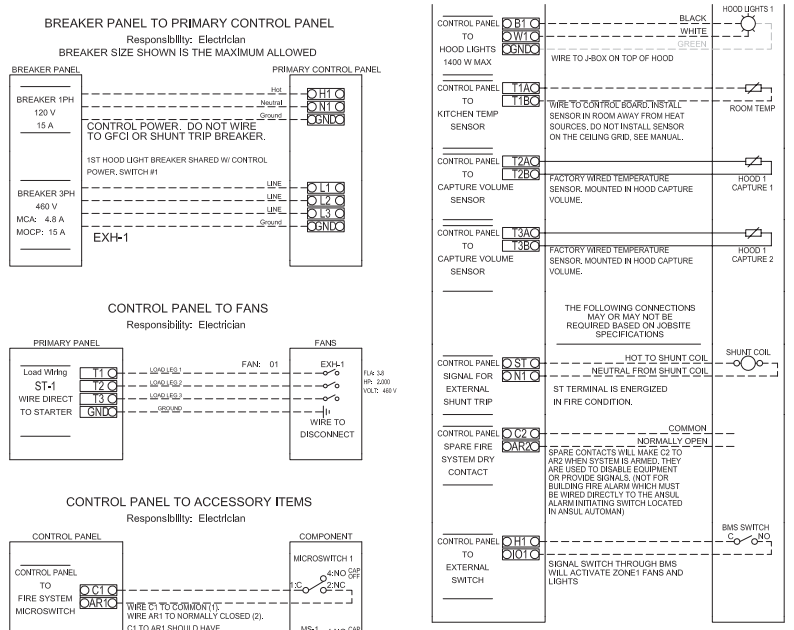
DRAWING ELECTRICAL LIGHTING CONTROL SCHEMATICS
DRAWING NUMBER E004



1 E005 COMMERCIAL KITCHEN HOOD POWER SCHEMATIC

SCALE: NTS

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ADRIAN J. SAHD, P.E.
Professional Engineer
Texas Registration No. 108647
Date: 04/10/2019

DATE 04/10/2019
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PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION

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DRAWING ELECTRICAL DETAILS

DRAWING NUMBER E005

ELECTRICAL DEMOLITION NOTES:

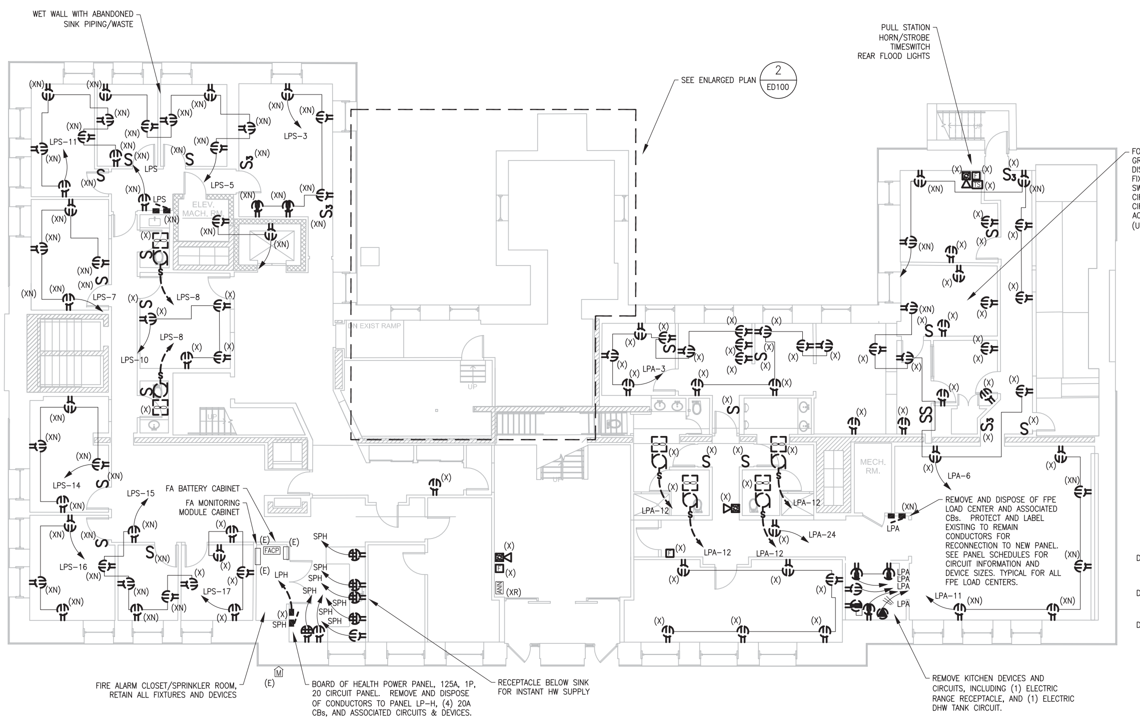
1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. EC TO CUT, CAP AND MAKE SAFE ALL ELECTRICAL CONDUIT & WIRING NECESSARY FOR REMOVAL BY GENERAL CONTRACTOR. REMOVE UNUSED WIRING BACK TO PANEL.
4. ALL LOW VOLTAGE WIRING (TV, TEL/DATA, ETC), JUNCTION BOXES, CONDUITS ARE THE EXCLUSIVE RESPONSIBILITY OF THE TOWN OF ARLINGTON. NO REMOVAL OR MODIFICATION OF THESE SYSTEMS BY EC, GC, OR DEMOLITION CONTRACTOR. ANY DEVICES SHOWN OR INDICATED ARE FOR REFERENCE ONLY. CONTACT TOWN OF ARLINGTON FOR DEMOLITION COORDINATION OF THESE SYSTEMS.
5. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

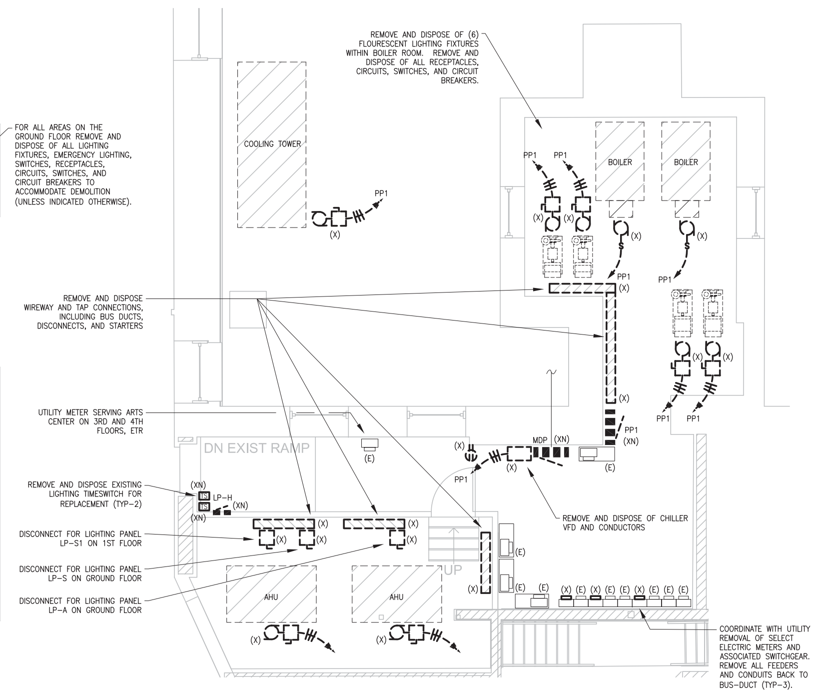
- - - - DEMOLISH & DISPOSE
——— EXISTING TO REMAIN

ELECTRICAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FOLLOW ALL APPLICABLE NEC, STATE, LOCAL, AND FEDERAL CODES RELATING TO THE WORK.
2. INSTALL ALL ELECTRICAL EQUIPMENT AND MATERIALS FOR COMPLETE AND OPERABLE SYSTEMS.
3. TYPE "NM" WIRING MAY BE USED WHERE ALLOWED BY CODE. ALL WIRING IN MECHANICAL ROOMS SHALL BE "MC".
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE "THHN/THWN" INSULATION. THE MINIMUM CONDUCTOR SIZE FOR BRANCH CIRCUITS SHALL BE NO. 12 AWG.
5. GC SHALL SEAL ALL CONDUIT PENETRATIONS THROUGH WALLS AND FLOORS FOR FIREPROOFING AND WEATHERPROOFING. EC TO PROVIDE MARKED UP PLANS SHOWING NEW PENETRATIONS.
6. ALL MATERIAL SHALL BE NEW AND BEAR THE U.L. LABEL AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY WERE DESIGNED AND APPROVED.
7. E.C. SHALL PROVIDE SUBMITTALS FOR ALL ELECTRICAL EQUIPMENT DEVICES, LIGHTING AND SPECIALTY SYSTEMS.
8. GROUND ALL EQUIPMENT PER NATIONAL ELECTRIC CODE.
9. ALL ELECTRICAL EQUIPMENT SHALL HAVE ENGRAVED PLASTIC NAMEPLATES. ALL PANEL BOARDS' CIRCUIT DIRECTORIES SHALL BE TYPED.
10. THE CONDUIT/WIRE SIZES AND WIRING DIAGRAM REPRESENTS A SUGGESTED DESIGN BASED UPON STANDARD ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE ACTUALLY INSTALLED EQUIPMENT. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT WIRING REQUIREMENTS, PRIOR TO CONSTRUCTION.
11. COORDINATE EXACT EQUIPMENT LOCATIONS AND POWER REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO ROUGH-INS.



1 ED100 GROUND FLOOR ELECTRICAL DEMO PLAN
SCALE: 1/8" = 1'-0"



2 ED100 GROUND FLOOR BOILER ROOM DEMO PLAN
SCALE: 1/4" = 1'-0"

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PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

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DRAWING
GROUND FLOOR ELECTRICAL DEMOLITION PLAN

DRAWING NUMBER
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ELECTRICAL DEMOLITION NOTES:

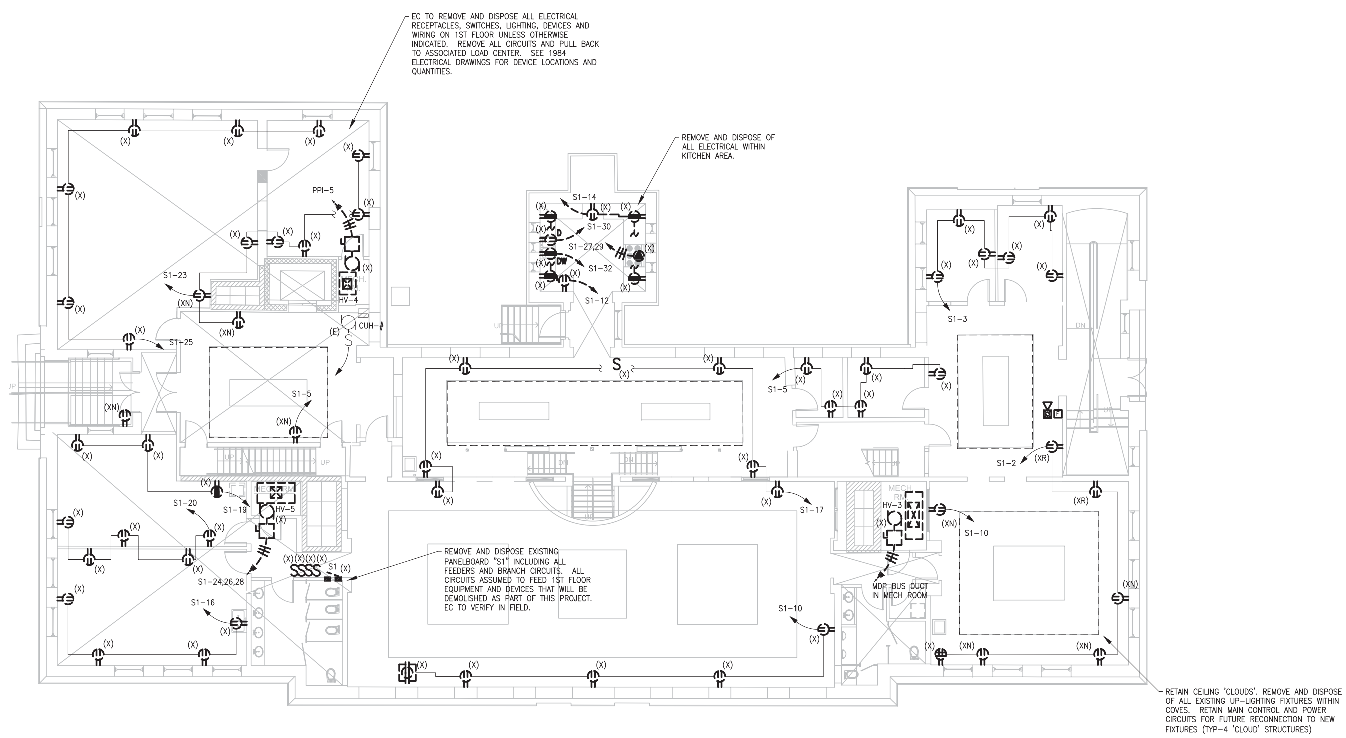
1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. EC TO CUT, CAP AND MAKE SAFE ALL ELECTRICAL CONDUIT & WIRING NECESSARY FOR REMOVAL BY GENERAL CONTRACTOR. REMOVE UNUSED WIRING BACK TO PANEL.
4. ALL LOW VOLTAGE WIRING (TV, TEL/DATA, ETC), JUNCTION BOXES, CONDUITS ARE THE EXCLUSIVE RESPONSIBILITY OF THE TOWN OF ARLINGTON. NO REMOVAL OR MODIFICATION OF THESE SYSTEMS BY EC, GC, OR DEMOLITION CONTRACTOR. ANY DEVICES SHOWN OR INDICATED ARE FOR REFERENCE ONLY. CONTACT TOWN OF ARLINGTON FOR DEMOLITION COORDINATION OF THESE SYSTEMS.
5. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- - - - - -	DEMOLISH & DISPOSE
————	EXISTING TO REMAIN

ELECTRICAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FOLLOW ALL APPLICABLE NEC, STATE, LOCAL, AND FEDERAL CODES RELATING TO THE WORK.
2. INSTALL ALL ELECTRICAL EQUIPMENT AND MATERIALS FOR COMPLETE AND OPERABLE SYSTEMS.
3. TYPE "NM" WIRING MAY BE USED WHERE ALLOWED BY CODE. ALL WIRING IN MECHANICAL ROOMS SHALL BE "MC".
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE "THHN/THWN" INSULATION. THE MINIMUM CONDUCTOR SIZE FOR BRANCH CIRCUITS SHALL BE NO. 12 AWG.
5. GC SHALL SEAL ALL CONDUIT PENETRATIONS THROUGH WALLS AND FLOORS FOR FIREPROOFING AND WEATHERPROOFING. EC TO PROVIDE MARKED UP PLANS SHOWING NEW PENETRATIONS.
6. ALL MATERIAL SHALL BE NEW AND BEAR THE U.L. LABEL AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY WERE DESIGNED AND APPROVED.
7. E.C. SHALL PROVIDE SUBMITTALS FOR ALL ELECTRICAL EQUIPMENT DEVICES, LIGHTING AND SPECIALTY SYSTEMS.
8. GROUND ALL EQUIPMENT PER NATIONAL ELECTRIC CODE.
9. ALL ELECTRICAL EQUIPMENT SHALL HAVE ENGRAVED PLASTIC NAMEPLATES. ALL PANEL BOARDS' CIRCUIT DIRECTORIES SHALL BE TYPED.
10. THE CONDUIT/WIRE SIZES AND WIRING DIAGRAM REPRESENTS A SUGGESTED DESIGN BASED UPON STANDARD ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE ACTUALLY INSTALLED EQUIPMENT. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT WIRING REQUIREMENTS, PRIOR TO CONSTRUCTION.
11. COORDINATE EXACT EQUIPMENT LOCATIONS AND POWER REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO ROUGH-INS.



1 ED101 FIRST FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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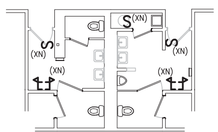
DRAWING
FIRST FLOOR ELECTRICAL DEMOLITION PLAN



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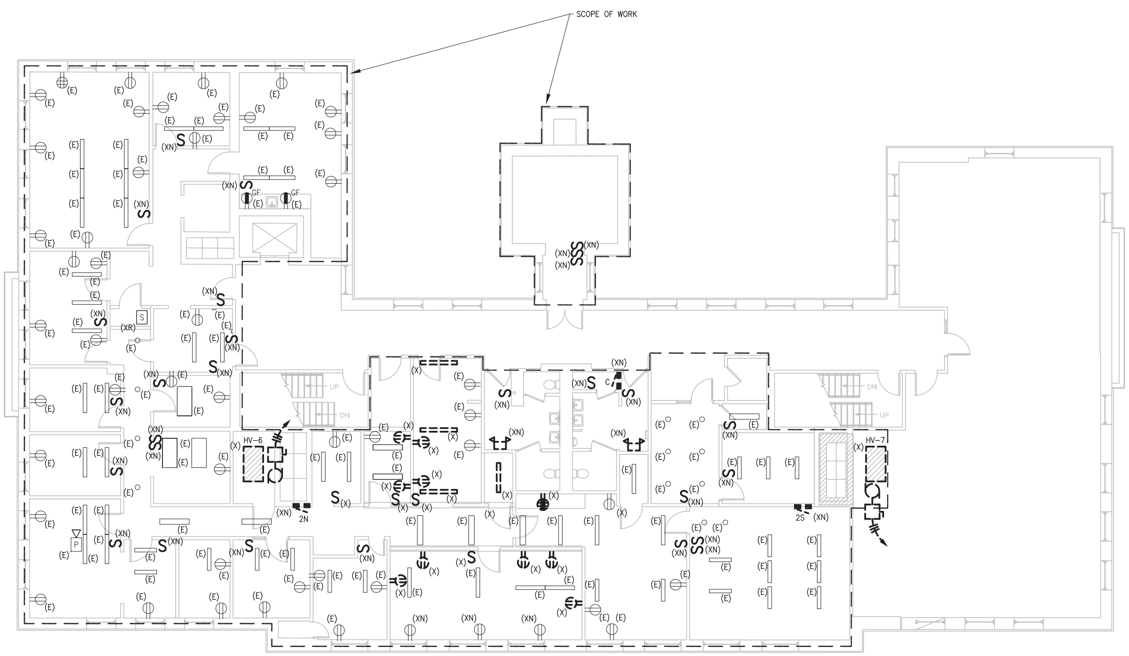
ED102
THIRD FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



1
ED102
SECOND FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

ELECTRICAL DEMOLITION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. EC TO CUT, CAP AND MAKE SAFE ALL ELECTRICAL CONDUIT & WIRING NECESSARY FOR REMOVAL BY GENERAL CONTRACTOR. REMOVE UNUSED WIRING BACK TO PANEL.
4. ALL LOW VOLTAGE WIRING (TV, TEL/DATA, ETC), JUNCTION BOXES, CONDUITS ARE THE EXCLUSIVE RESPONSIBILITY OF THE TOWN OF ARLINGTON. NO REMOVAL OR MODIFICATION OF THESE SYSTEMS BY EC, GC, OR DEMOLITION CONTRACTOR. ANY DEVICES SHOWN OR INDICATED ARE FOR REFERENCE ONLY. CONTACT TOWN OF ARLINGTON FOR DEMOLITION COORDINATION OF THESE SYSTEMS.
5. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- - - - - - DEMOLISH & DISPOSE

———— EXISTING TO REMAIN

ELECTRICAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FOLLOW ALL APPLICABLE NEC, STATE, LOCAL, AND FEDERAL CODES RELATING TO THE WORK.
2. INSTALL ALL ELECTRICAL EQUIPMENT AND MATERIALS FOR COMPLETE AND OPERABLE SYSTEMS.
3. TYPE "NM" WIRING MAY BE USED WHERE ALLOWED BY CODE. ALL WIRING IN MECHANICAL ROOMS SHALL BE "MC".
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE "THHN/THWN" INSULATION. THE MINIMUM CONDUCTOR SIZE FOR BRANCH CIRCUITS SHALL BE NO. 12 AWG.
5. GC SHALL SEAL ALL CONDUIT PENETRATIONS THROUGH WALLS AND FLOORS FOR FIREPROOFING AND WEATHERPROOFING. EC TO PROVIDE MARKED UP PLANS SHOWING NEW PENETRATIONS.
6. ALL MATERIAL SHALL BE NEW AND BEAR THE U.L. LABEL AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY WERE DESIGNED AND APPROVED.
7. E.C. SHALL PROVIDE SUBMITTALS FOR ALL ELECTRICAL EQUIPMENT DEVICES, LIGHTING AND SPECIALTY SYSTEMS.
8. GROUND ALL EQUIPMENT PER NATIONAL ELECTRIC CODE.
9. ALL ELECTRICAL EQUIPMENT SHALL HAVE ENGRAVED PLASTIC NAMEPLATES. ALL PANEL BOARDS' CIRCUIT DIRECTORIES SHALL BE TYPED.
10. THE CONDUIT/WIRE SIZES AND WIRING DIAGRAM REPRESENTS A SUGGESTED DESIGN BASED UPON STANDARD ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE ACTUALLY INSTALLED EQUIPMENT. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT WIRING REQUIREMENTS, PRIOR TO CONSTRUCTION.
11. COORDINATE EXACT EQUIPMENT LOCATIONS AND POWER REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO ROUGH-INS.

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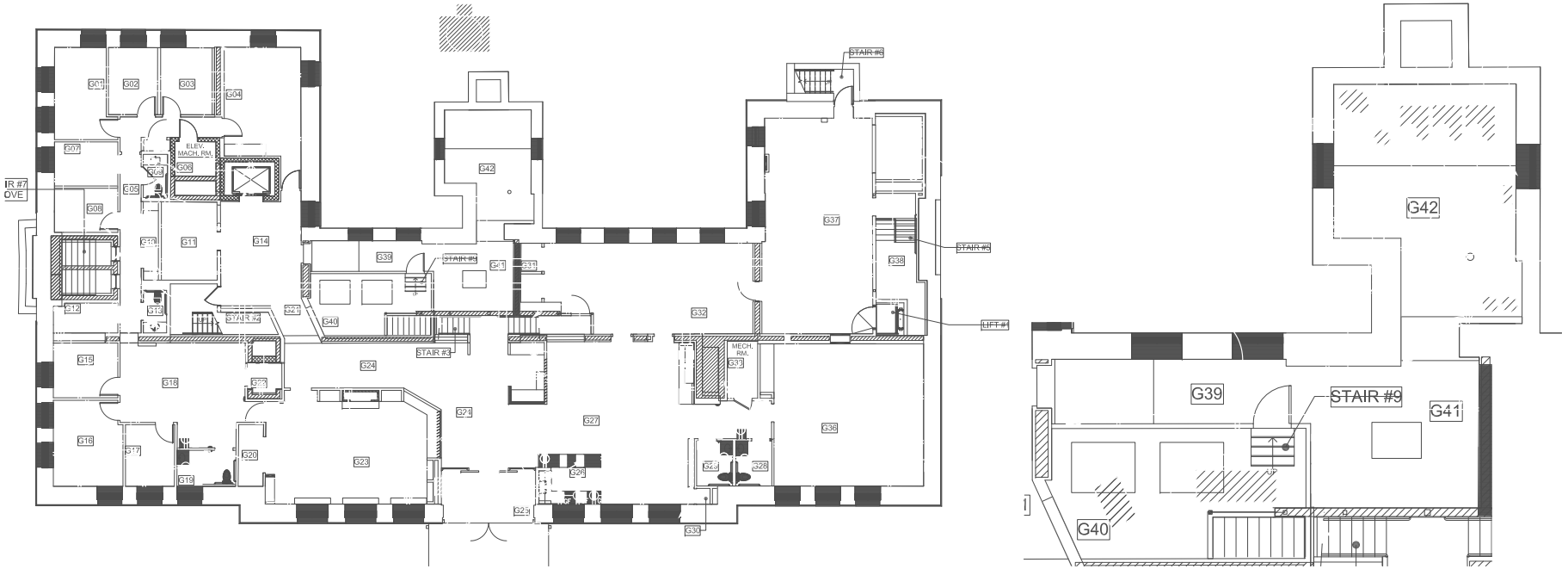
PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

DRAWING NUMBER
ED102
DRAWING
SECOND & THIRD FLOOR ELECTRICAL DEMOLITION PLAN


G01
G02
G03
G04
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ELEV. MACH. RM.
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STAIR #4
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STAIR #5
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STAIR #3
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MECH. RM.
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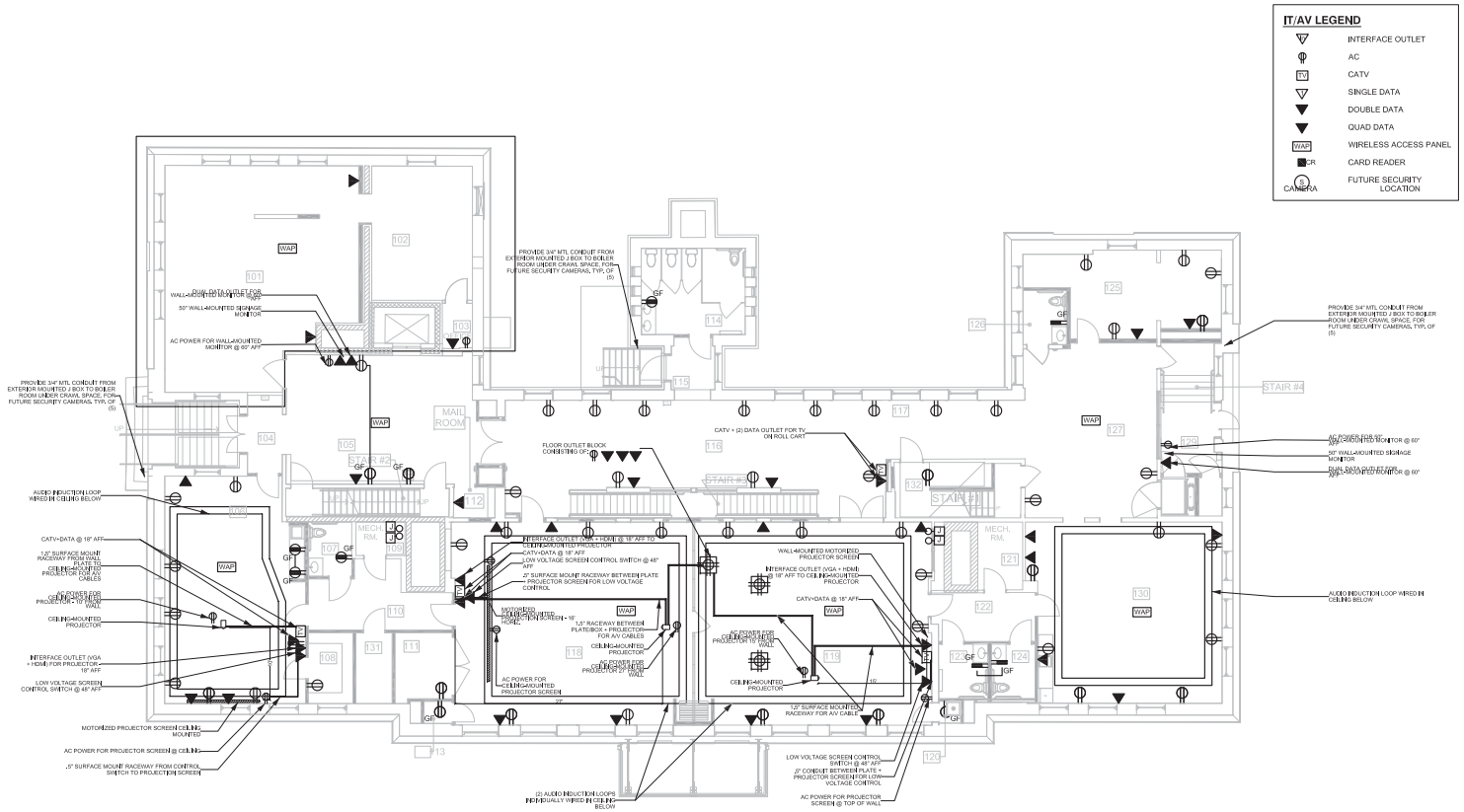
STAIR #6
LIFT #7
G42
G39
STAIR #9
G41
G40

ELECTRICAL NOTES:

1. THIS PLAN IS USED FOR REFERENCE ONLY.
2. OWNER'S I.T. INSTALLER IS RESPONSIBLE FOR INSTALLATION OF ALL TV, TELEPHONE AND DATA SYSTEM COMPONENTS. TEL/DATA PLANS ARE FOR EC REFERENCE FOR COORDINATION OF I.T. INSTALLATION HAPPENING CONCURRENTLY WITH THIS PROJECT. EC TO PROVIDE I.T. RELATED CONDUITS WITH PULL-STRINGS WHERE INDICATED ON PLANS, IN ADDITION TO I.T. ASSOCIATED POWER, AND CABLE.



1 EAV101 FIRST FLOOR AUDIO/VISUAL REFERENCE PLAN
SCALE: 1/8" = 1'-0"

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Transforming the Learning Environment
ARLINGTON CENTRAL SCHOOL RENOVATION
ARLINGTON CENTRAL SCHOOL DISTRICT
ARLINGTON, NEW YORK

DATE 04/10/2019
NUMBER 1805.00
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
DRAWN BY
CHECKED BY GAC

DRAWING NUMBER EAV101
DRAWING FIRST FLOOR AUDIO/VISUAL REFERENCE PLAN

ELECTRICAL NOTES:

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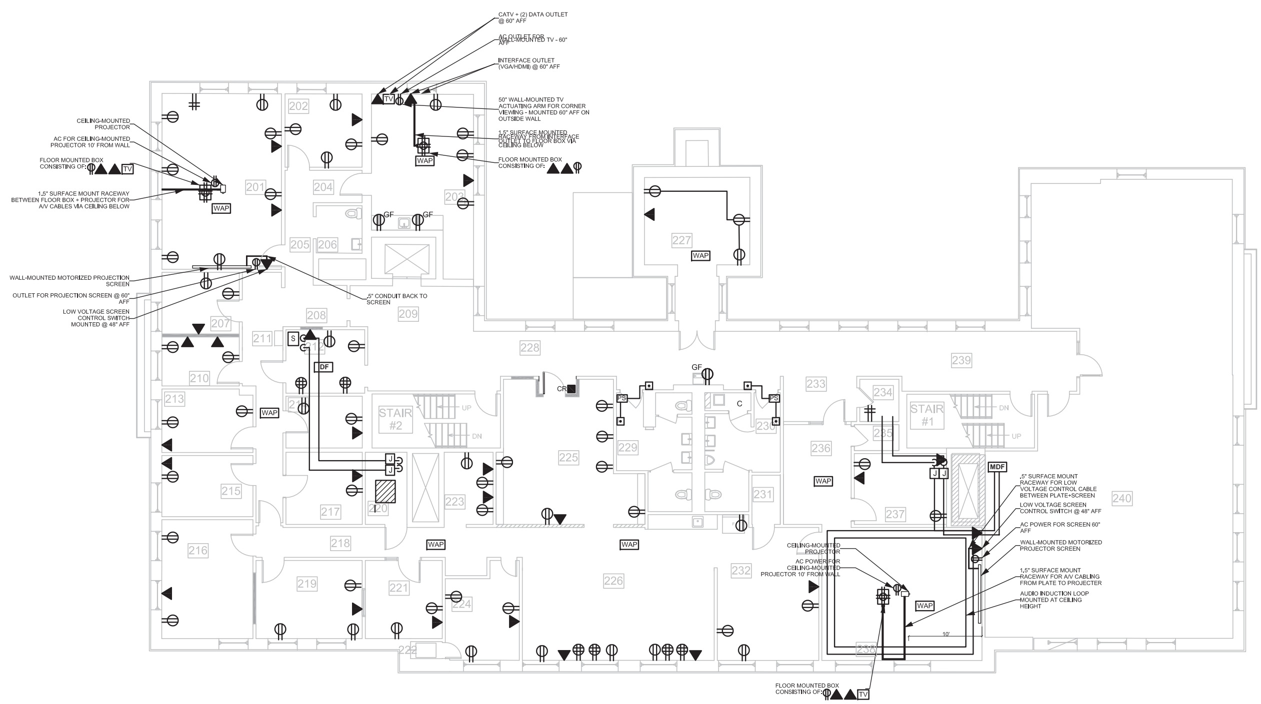
2. OWNER'S I.T. INSTALLER IS RESPONSIBLE FOR INSTALLATION OF ALL TV, TELEPHONE AND DATA SYSTEM COMPONENTS. TEL/DATA PLANS ARE FOR EC REFERENCE FOR COORDINATION OF I.T. INSTALLATION HAPPENING CONCURRENTLY WITH THIS PROJECT. EC TO PROVIDE I.T. RELATED CONDUITS WITH PULL-STRINGS WHERE INDICATED ON PLANS, IN ADDITION TO I.T. ASSOCIATED POWER, AND CABLE.

IT/AV LEGEND

- INTERFACE OUTLET
- AC
- CATV
- SINGLE DATA
- DOUBLE DATA
- QUAD DATA
- WAP — WIRELESS ACCESS PANEL
- CR — CARD READER
- CAMERA — FUTURE SECURITY LOCATION



1 / EAV102 SECOND FLOOR AUDIO/VISUAL REFERENCE PLAN

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PROJECT: ARLINGTON CENTRAL SCHOOL RENOVATION

NUMBER: 1805.00

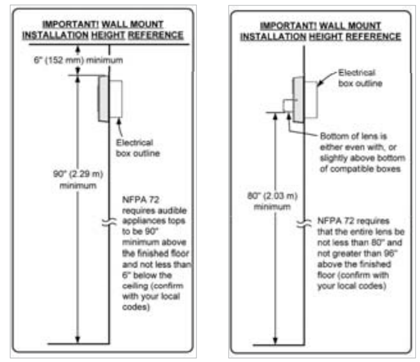
DATE: 04/10/2019

DRAWN BY:

CHECKED BY: GAC

DRAWING: SECOND & THIRD FLOOR AUDIO/VISUAL REFERENCE PLAN

DRAWING NUMBER: EAV102



HORN STROBE

1 FA001 NOTIFICATION APPLIANCE MOUNTING HEIGHTS

SCALE: NTS

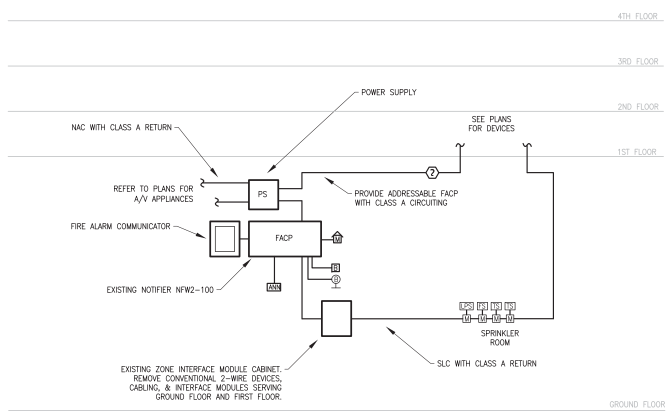
FIRE ALARM LEGEND

- SYSTEM HEAT DETECTOR
- SYSTEM SMOKE DETECTOR
- SYSTEM SMOKE DETECTOR ("H" DENOTES SOUNDER BASE/HORN)
- SYSTEM SMOKE DETECTOR ("R" DENOTES ELEVATOR RECALL)
- SYSTEM SMOKE DETECTOR ("D" DENOTES DUCT SMOKE DETECTOR)
- INTERCONNECTED SMOKE ALARM (120V)
- COMBINATION SMOKE/CARBON MONOXIDE ALARM (120V) ("S" DENOTES INTEGRAL STROBE)
- CARBON MONOXIDE ALARM
- SYSTEM CARBON MONOXIDE DETECTOR
- CEILING HORN/STROBE
- WEATHERPROOF FIRE ALARM BEACON
- STROBE FOR VISUAL NOTIFICATION OF CARBON MONOXIDE ALARM
- STROBE FOR VISUAL NOTIFICATION OF SMOKE ALARM
- FIRE ALARM AUDIO HORN/SPEAKER DEVICE
- COMBINATION HORN/SPEAKER & STROBE (# INDICATES CANDELLA RATING)
- LOW FREQUENCY SOUNDER (520Hz)
- STROBE VISUAL ALARM SIGNAL (# INDICATES CANDELLA RATING)

Symbol	Description
FACP	FIRE ALARM CONTROL PANEL
ANN	FIRE ALARM ANNUNCIATOR
BDA	BI-DIRECTIONAL AMPLIFIER
B	SPRINKLER SYSTEM ELECTRIC BELL
C	CONTROL MODULE
CR	CONTROL RELAY
DH	MAGNETIC DOOR HOLDER
F	FIRE ALARM PULL STATION
FS	FLOW SWITCH
HPS	HIGH PRESSURE SWITCH
IM	ISOLATION MODULE
K	KEY DEPOSITORY BOX
LPS	LOW PRESSURE SWITCH
M	MASTER BOX
M #	MONITORING MODULE (# INDICATES QUANTITY)
PE	POWER EXTENDER
PS	NOTIFICATION APPLIANCE POWER SUPPLY
RI	REMOTE INDICATOR
RM	RELAY MODULE
TS	TAMPER SWITCH

GENERAL FIRE ALARM NOTES:

1. GENERAL CONDITIONS & SPECIFICATIONS: THE GENERAL CONDITIONS, AND SPECIFICATIONS ARE PART OF THIS WORK. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND BE FAMILIAR WITH THESE CONDITIONS & SPECIFICATIONS.
2. CODES AND ORDINANCES: INSTALLATION OF THE SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NATIONAL ELECTRIC CODE, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES.
3. REQUIREMENTS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES AND CERTIFICATES.
4. DESIGN: EQUIPMENT AND ACCESSORIES NOT SPECIFICALLY DESCRIBED OR IDENTIFIED BY MANUFACTURER'S CATALOG NUMBERS SHALL BE DESIGNED IN CONFORMITY WITH NEC, IEEE, UL OR OTHER APPLICABLE TECHNICAL STANDARDS, AND SHALL HAVE NEAT AND FINISHED APPEARANCE.
5. INSTALLATION: ERECT EQUIPMENT IN NEAT AND WORKMANLIKE MANNER; INSTALL SO THAT CONNECTING AND DISCONNECTING OF EQUIPMENT AND ACCESSORIES CAN BE MADE READILY AND SO THAT ALL PARTS ARE EASILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE MANUFACTURERS' INSTRUCTIONS & REQUIREMENTS AND THE BEST STANDARD PRACTICE FOR THIS TYPE OF WORK.
6. BEST PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY FITTING, CONNECTION, OR APPLIANCE. THIS CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.
7. EQUIPMENT LOCATION: THE E.C. SHALL VERIFY THE LOCATIONS AND MOUNTING HEIGHTS OF ALL EQUIPMENT AND SWITCHES, AND THE EXACT ROUTING OF ALL CONDUIT AND WIRING, WITH THE OWNER'S REPRESENTATIVE IN THE FIELD, PRIOR TO COMMENCING ANY WORK. ANY CONFLICTS WITH LOCATIONS, OR PROBLEMS ENCOUNTERED WITH ROUTING, SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
8. MATERIALS: ALL MATERIALS, FIXTURES AND EQUIPMENT SHALL BE NEW WITHOUT IMPERFECTIONS AND SHALL BE DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL. WHEREVER POSSIBLE, ALL TRIM, ACCESSORIES AND PARTS SHALL BE OF THE SAME MANUFACTURER AS THE RELATED EQUIPMENT AND FIXTURES.
9. GENERAL COORDINATION: EXAMINE ALL DRAWINGS AND OTHER SECTIONS OF THE SPECIFICATIONS FOR REQUIREMENTS WHICH AFFECT THE WORK OF THIS SECTION. COORDINATE WORK WITH THAT OF OTHER TRADES AFFECTING, OR AFFECTED BY, WORK OF THIS SECTION. COOPERATE WITH OTHER TRADES TO ENSURE THE STEADY PROGRESS OF THE WORK.
10. PROTECTION OF EQUIPMENT AND MATERIALS: RESPONSIBILITY FOR CARE AND PROTECTION OF ALL MATERIALS AND ELECTRICAL WORK RESTS WITH THIS CONTRACTOR AT ALL TIMES UNTIL IT HAS BEEN APPROVED.
11. GUARANTEE: ALL NEW COMPONENTS OF THE INSTALLATION SHALL BE GUARANTEED IN WRITING BY THIS CONTRACTOR TO BE FREE FROM DEFECTS OF MANUFACTURE AND INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF WRITTEN ACCEPTANCE BY THE ENGINEER. ANY DEFECTS FOUND SHALL BE REPAIRED BY THE ELECTRICAL CONTRACTOR AT THEIR OWN EXPENSE.
12. NOTIFICATION: THE E.C. SHALL NOTIFY THE ENGINEER UPON: (1) COMPLETION OF ALL ROUGH WIRING WORK, BEFORE CLOSURE OF ANY TRENCHES, OPEN WALL CAVITIES OR CHASES. (2) UPON "SUBSTANTIAL COMPLETION" OF ALL SYSTEMS. AFTER "SUBSTANTIAL COMPLETION", THE ENGINEER WILL PREPARE A PUNCH LIST OF ITEMS TO BE CORRECTED. THE E.C. SHALL CORRECT ANY DEFICIENCIES FOUND PROMPTLY, AT HIS/HER OWN EXPENSE.
13. FINAL COMPLETION: THE WORK SHALL NOT BE CONSIDERED COMPLETE UNTIL THE PUNCH LIST IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND ALL FINAL INSPECTIONS HAVE BEEN COMPLETED.



NOTES:

1. PROVIDE BATTERY CALCULATIONS AND INCLUDE POWER SUPPLIES AS REQUIRED PROVIDE VOLTAGE DROP CALCULATIONS & SIZE CIRCUITS AS REQUIRED.
2. PROVIDE ISOLATION MODULES AS REQUIRED.
3. PROVIDE TIER-TWO SHOP DRAWING SUBMITTAL.

2 FA001 FIRE ALARM ONE-LINE DIAGRAM

NTS

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NORIAN / SIANI ENGINEERING, INC.

PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION

NUMBER 1805.00

DATE 04/10/2019

DRAWN BY

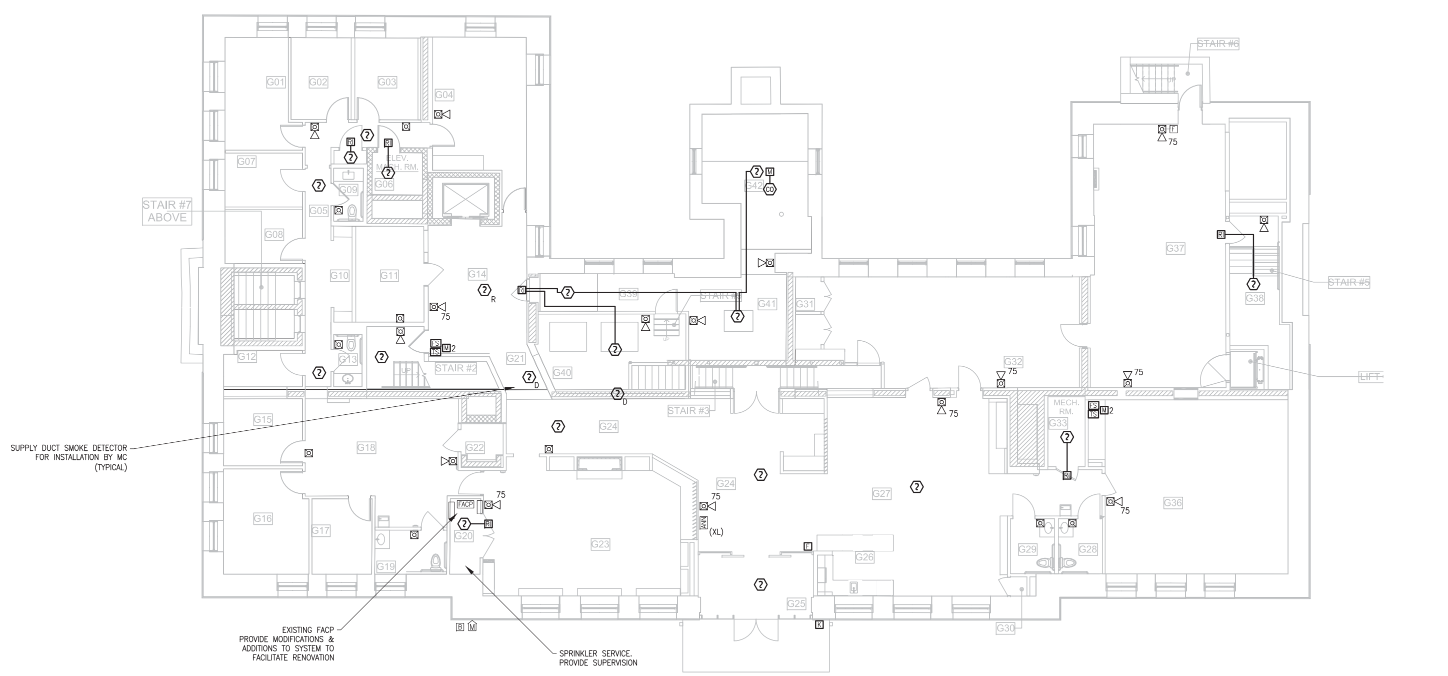
CHECKED BY GAC

DRAWING FIRE ALARM LEGEND, NOTES, & SCHEDULES

DRAWING NUMBER FA001

FIRE ALARM NOTES:

1. PLAN IS DIAGRAMMATIC. LOCATE DEVICES IN ACCORDANCE WITH NFPA 72 (2013) AND DEVICE LISTING.
2. RUN ALL CONDUIT CONCEALED THROUGHOUT.
3. PROVIDE NEW RETURN LOOP FROM MOST REMOTE TERMINAL DEVICE TO RESPECTIVE TERMINAL CABINET.
4. ALL FIRE ALARM EMT FITTINGS SHALL BE PAINTED RED BY THE E.C. DEVICE BOXES SHALL BE STEEL (DIECAST NOT ALLOWED).
5. ALL WIRING SHALL BE STRANDED. SLC WIRING SHALL BE LOW CAPACITANCE TYPE.
6. NO SPLICES, T-TAPS OR INLINE TERMINAL BLOCK CONNECTIONS ARE ALLOWED. ALL WIRING SHALL BE POINT TO POINT FROM DEVICE TO TERMINATION.
7. ALL NEW FIRE ALARM DEVICES SHALL BE UL-LISTED ADA-COMPLIANT SYSTEMS.
8. ALL TERMINATIONS BY FACTORY AUTHORIZED SYSTEM VENDOR.
9. ALL FIRE ALARM AUDIOVISUAL UNITS TO BE MOUNTED PER NFPA 72 REQUIREMENTS.
10. PROVIDE RISER DIAGRAM(S) AUTHORED BY FIRE ALARM SYSTEM VENDOR TO BE DISTRIBUTED TO OWNER & ENGINEER. FOR APPROVAL PRIOR TO INSTALLATION
11. MINIMUM SIZE CONDUIT TO BE 3/4".
12. CONTRACTOR TO PROVIDE VENDOR TESTING PER NFPA 72. VENDOR TO SUBMIT "RECORD OF COMPLETION" AFFIRMING PROPER OPERATION.
13. LABEL ALL DEVICES WITH SELF-ADHESIVE VINYL LABELS.
14. CONTRACTOR TO PROVIDE A COMPLETE SUBMITTAL IN ACCORDANCE WITH THE I.B.C. SECTION 907.1.2. PROVIDE TIER TWO SHOP DRAWINGS OF FIRE ALARM SYSTEM, BATTERY/VOLTAGE DROP CALCULATIONS AND MANUFACTURER DATA ON DEVICES. UPON COMPLETION PROVIDE TIER THREE RECORD DRAWINGS.



1 FA100 GROUND FLOOR FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"

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PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

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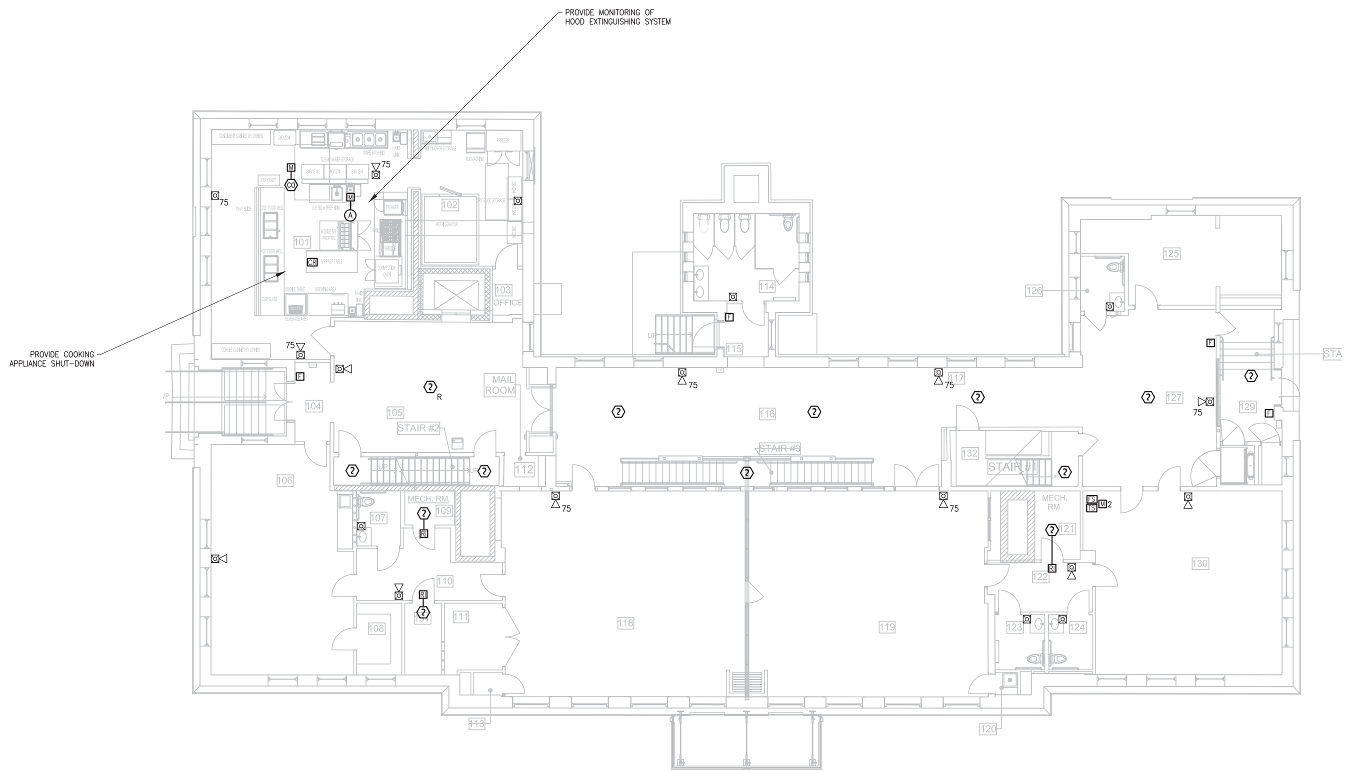
DRAWING
GROUND FLOOR FIRE ALARM PLAN

DRAWING NUMBER
FA100



1 FA101 FIRST FLOOR FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"

FIRE ALARM NOTES:

1. PLAN IS DIAGRAMMATIC. LOCATE DEVICES IN ACCORDANCE WITH NFPA 72 (2013) AND DEVICE LISTING.
2. RUN ALL CONDUIT CONCEALED THROUGHOUT.
3. PROVIDE NEW RETURN LOOP FROM MOST REMOTE TERMINAL DEVICE TO RESPECTIVE TERMINAL CABINET.
4. ALL FIRE ALARM EMT FITTINGS SHALL BE PAINTED RED BY THE E.C. DEVICE BOXES SHALL BE STEEL (DIECAST NOT ALLOWED).
5. ALL WIRING SHALL BE STRANDED. SLC WIRING SHALL BE LOW CAPACITANCE TYPE.
6. NO SPLICES, T-TAPS OR INLINE TERMINAL BLOCK CONNECTIONS ARE ALLOWED. ALL WIRING SHALL BE POINT TO POINT FROM DEVICE TO TERMINATION.
7. ALL NEW FIRE ALARM DEVICES SHALL BE UL-LISTED ADA-COMPLIANT SYSTEMS.
8. ALL TERMINATIONS BY FACTORY AUTHORIZED SYSTEM VENDOR.
9. ALL FIRE ALARM AUDIOVISUAL UNITS TO BE MOUNTED PER NFPA 72 REQUIREMENTS.
10. PROVIDE RISER DIAGRAM(S) AUTHORED BY FIRE ALARM SYSTEM VENDOR TO BE DISTRIBUTED TO OWNER & ENGINEER. FOR APPROVAL PRIOR TO INSTALLATION
11. MINIMUM SIZE CONDUIT TO BE 3/4".
12. CONTRACTOR TO PROVIDE VENDOR TESTING PER NFPA 72. VENDOR TO SUBMIT 'RECORD OF COMPLETION' AFFIRMING PROPER OPERATION.
13. LABEL ALL DEVICES WITH SELF-ADHESIVE VINYL LABELS.
14. CONTRACTOR TO PROVIDE A COMPLETE SUBMITTAL IN ACCORDANCE WITH THE I.B.C. SECTION 907.1.2. PROVIDE TIER TWO SHOP DRAWINGS OF FIRE ALARM SYSTEM, BATTERY/VOLTAGE DROP CALCULATIONS AND MANUFACTURER DATA ON DEVICES. UPON COMPLETION PROVIDE TIER THREE RECORD DRAWINGS.

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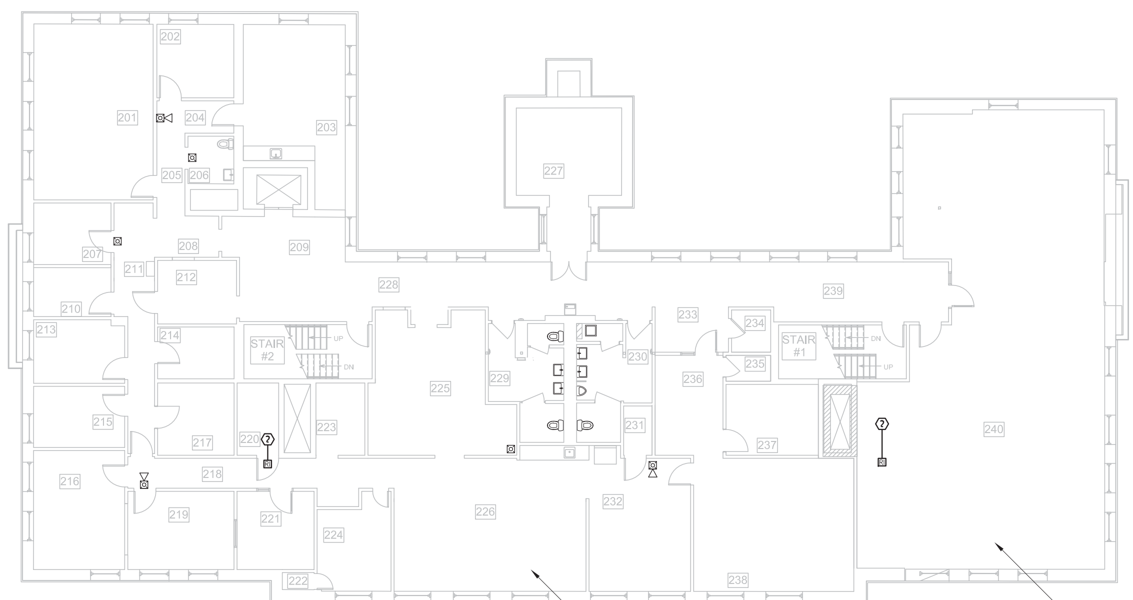
DRAWING FIRST FLOOR FIRE ALARM PLAN



1 FA102 SECOND FLOOR FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

FIRE ALARM NOTES:

1. PLAN IS DIAGRAMMATIC. LOCATE DEVICES IN ACCORDANCE WITH NFPA 72 (2013) AND DEVICE LISTING.
2. RUN ALL CONDUIT CONCEALED THROUGHOUT.
3. PROVIDE NEW RETURN LOOP FROM MOST REMOTE TERMINAL DEVICE TO RESPECTIVE TERMINAL CABINET.
4. ALL FIRE ALARM EMT FITTINGS SHALL BE PAINTED RED BY THE E.C. DEVICE BOXES SHALL BE STEEL (DIECAST NOT ALLOWED).
5. ALL WIRING SHALL BE STRANDED. SLC WIRING SHALL BE LOW CAPACITANCE TYPE.
6. NO SPLICES, T-TAPS OR INLINE TERMINAL BLOCK CONNECTIONS ARE ALLOWED. ALL WIRING SHALL BE POINT TO POINT FROM DEVICE TO TERMINATION.
7. ALL NEW FIRE ALARM DEVICES SHALL BE UL-LISTED ADA-COMPLIANT SYSTEMS.
8. ALL TERMINATIONS BY FACTORY AUTHORIZED SYSTEM VENDOR.
9. ALL FIRE ALARM AUDIOVISUAL UNITS TO BE MOUNTED PER NFPA 72 REQUIREMENTS.
10. PROVIDE RISER DIAGRAM(S) AUTHORED BY FIRE ALARM SYSTEM VENDOR TO BE DISTRIBUTED TO OWNER & ENGINEER. FOR APPROVAL PRIOR TO INSTALLATION
11. MINIMUM SIZE CONDUIT TO BE 3/4".
12. CONTRACTOR TO PROVIDE VENDOR TESTING PER NFPA 72. VENDOR TO SUBMIT 'RECORD OF COMPLETION' AFFIRMING PROPER OPERATION.
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DRAWING
SECOND FLOOR FIRE ALARM PLAN

DRAWING NUMBER
FA102

TABLE 8.6.5.1.2 POSITIONING OF SPRINKLER TO AVOID OBSTRUCTION TO DISCHARGE	
DISTANCE FROM SPRINKLERS TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION (INCHES) (B)
LESS THAN 1 FT	0
1'-0" TO LESS THAN 1'-6"	0'-2.5"
1'-6" TO LESS THAN 2'-0"	0'-3.5"
2'-0" TO LESS THAN 2'-6"	0'-5.5"
2'-6" TO LESS THAN 3'-0"	0'-7.5"
3'-0" TO LESS THAN 3'-6"	0'-9.5"
3'-6" TO LESS THAN 4'-0"	1'-0"
4'-0" TO LESS THAN 4'-6"	1'-2"
4'-6" TO LESS THAN 5'-0"	1'-4.5"
5'-0" TO LESS THAN 5'-6"	1'-6"
5'-6" TO LESS THAN 6'-0"	1'-8"
6'-0" TO LESS THAN 6'-6"	2'-0"
6'-6" TO LESS THAN 7'-0"	2'-6"
7'-0" AND GREATER	2'-11"

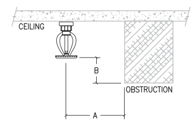
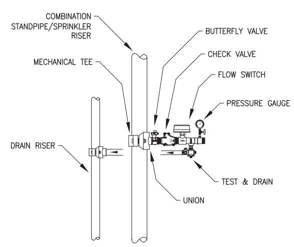


FIGURE 8.6.5.1.2(A)
POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE

NFPA 13 TABLE 8.6.5.1.2 + FIGURE 8.6.5.1.2(A) & (B) STANDARD PENDENT AND UPRIGHT SPRAY SPRINKLERS

1 / FS001 — OBSTRUCTION RULES FOR INSTALLATION – STANDARD UPRIGHT AND PENDENT HEADS
SCALE: NTS



2 / FS001 — FLOOR CONTROL VALVE ASSEMBLY
SCALE: NTS

SPRINKLER HEAD SCHEDULE

HEATED SPACE UPRIGHT HEAD: STANDARD COVERAGE, QUICK RESPONSE, EXPOSED UPRIGHT, 5.6 K FACTOR, 15X15 MAX COVERAGE, BRASS FINISH. (BASIS OF DESIGN: TYCO MODEL TY 3151)

HEATED SPACE PENDANT HEAD: STANDARD COVERAGE, QUICK RESPONSE, EXPOSED PENDANT, 5.6 K FACTOR, 15X15 MAX COVERAGE, BRASS FINISH. (BASIS OF DESIGN: TYCO MODEL TY 3251)

HEATED SPACE HORIZONTAL SIDEWALL HEAD: STANDARD COVERAGE, QUICK RESPONSE, HORIZONTAL SIDEWALL, 5.6 K FACTOR, 15X15 MAX COVERAGE, BRASS FINISH. (BASIS OF DESIGN: TYCO MODEL TY 3351)

UNHEATED SPACE HORIZONTAL SIDEWALL HEAD: STANDARD COVERAGE, QUICK RESPONSE, DRY SIDEWALL, HEAD, 5.6 K FACTOR, 15X15 MAX COVERAGE, WITH FLEXIBLE BARREL. (BASIS OF DESIGN: VICTAULIC V3510)

UNHEATED SPACE RECESSED PENDANT HEAD: STANDARD COVERAGE, QUICK RESPONSE, DRY RECESSED PENDANT, HEAD, 5.6 K FACTOR, 15X15 MAX COVERAGE. (BASIS OF DESIGN: VICTAULIC V3505)

FIRE SUPPRESSION LEGEND

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
BFP	BACK FLOW PREVENTER
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DN	DOWN
DR	DRAIN
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
ELEV	ELEVATOR
ETR	EXISTING TO REMAIN
(E)	EXISTING
FCA	FLOOR CONTROL ASSEMBLY
FD	FIRE DEPARTMENT
FDC	FIRE DEPARTMENT CONNECTION
FDV	FIRE DEPARTMENT VALVE
FS	FLOW SWITCH
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
LPS	LOW PRESSURE SWITCH
MC	MECHANICAL CONTRACTOR
NIC	NOT IN CONTRACT
PROVIDE	SUPPLY AND INSTALL
PC	PLUMBING CONTRACTOR
PRV	PRESSURE REDUCING VALVE
SP	STANDPIPE
SPR	SPRINKLER
TS	TAMPER SWITCH
TYP	TYPICAL
U.G.	UNDERGROUND
W/	WITH
ZCA	ZONE CONTROL ASSEMBLY

NEW WORK (BOLD LINE)
EXISTING WORK (LIGHT OR SHADED LINE)
FIRE DEPARTMENT CONNECTION
ELECTRIC BELL
HYDRAULIC REFERENCE POINT
CONNECT TO EXISTING
CONCEALED PENDANT *
RECESSED SIDEWALL *
EXPOSED UPRIGHT
RECESSED PENDANT *
RECESSED DRY PENDANT *
DRY SIDEWALL *

* SUBSCRIPT NUMERAL INDICATES SPRINKLER HEAD TEMPERATURE RATING. IF NO NUMERAL IS INDICATED THEN HEAD SHALL BE ORDINARY TEMPERATURE RATING.

CONCEALED FIRE PROTECTION PIPING
EXPOSED FIRE PROTECTION PIPING
DROP, PIPE DOWN
RISER, PIPE UP
ISOLATION VALVE WITH TAMPER SWITCH
SPRING CHECK VALVE
O.S. & Y. VALVE WITH TAMPER SWITCH
UNION
FLANGE
BALL VALVE WITH HOSE THREAD, BRASS CAP AND CHAIN
DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTER
WATERFLOW ALARM SWITCH
TAMPER SWITCH
LOW-PRESSURE SWITCH
SPRINKLER TEST & DRAIN ASSEMBLY
DRY CONTROL VALVE
ZONE CONTROL VALVE
ZONE CONTROL ASSEMBLY

HYDRAULIC DESIGN INFORMATION	
0.10	1500
LIGHT HAZARD	

DENSITY (GPM/SQ.FT.) → 0.10; DESIGN COVERAGE (SQ.FT.) → 1500; NFPA 13 HAZARD CLASSIFICATION → LIGHT HAZARD

FIRE SUPPRESSION NOTES:

1. THE FOLLOWING PLANS ARE TIER ONE CONSTRUCTION DOCUMENTS. LAYOUT OF SPRINKLER HEADS AND HYDRAULIC CALCULATIONS ARE FOR BUILDING DEPARTMENT USE ONLY. SPRINKLER CONTRACTOR SHALL PREPARE TIER TWO SHOP DRAWINGS/WORKING PLANS, INCLUDING HYDRAULIC CALCULATIONS. CONTRACTOR TO OBTAIN ALL APPROVALS AS REQUIRED PRIOR TO STARTING CONSTRUCTION. UPON SUBSTANTIAL COMPLETION, CONTRACTOR TO PROVIDE TIER THREE RECORD DRAWINGS/AS-BUILT DRAWINGS.
2. THE BASE BUILDING "CONTRACT DRAWINGS" AND "SPECIFICATIONS" INCLUDING ALL RESPECTIVE ADDENDA AND BULLETINS SHALL FORM A PART OF THIS WORK AND ALL WORK SHALL BE SUBJECT TO RESPECTIVE PROVISIONS THEREFORE.
3. ALL SPRINKLER WORK SHALL BE IN STRICT CONFORMANCE WITH THE REQUIREMENTS OF NFPA-13, LOCAL FIRE DEPARTMENT, MASSACHUSETTS STATE BUILDING CODE, AND THE OWNER'S INSURANCE COMPANY.
4. STANDARD PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY FITTING, CONNECTION, OR APPLIANCE. THIS CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS IN ACCORDANCE WITH THE BEST STANDARD PRACTICE OF THE TRADE.
5. MATERIALS: ALL MATERIALS, FIXTURES, AND EQUIPMENT SHALL BE NEW WITHOUT IMPERFECTIONS AND SHALL BE DELIVERED, ERECTED, CONNECTED, AND FINISHED IN EVERY DETAIL. WHEREVER POSSIBLE, ALL TRIM, ACCESSORIES, AND PARTS SHALL BE OF THE SAME MANUFACTURER AS THE RELATED EQUIPMENT AND FIXTURES.
6. PROTECTION OF EQUIPMENT AND MATERIALS: RESPONSIBILITY FOR CARE AND PROTECTION OF ALL MATERIALS AND WORK RESTS WITH THIS CONTRACTOR AT ALL TIMES UNTIL IT HAS BEEN APPROVED.
7. FINAL COMPLETION: THE WORK SHALL NOT BE CONSIDERED COMPLETE UNTIL THE PUNCH LIST IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND ALL FINAL INSPECTIONS HAVE BEEN COMPLETED.
8. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES, NOTIFY ENGINEER OF CONFLICTS PRIOR TO INSTALLATION OF PIPING OR EQUIPMENT.
9. SPRINKLER CONTRACTOR SHALL ADJUST AND/OR ADD SPRINKLER HEADS AS REQUIRED UTILIZING ARCHITECT'S REFLECTED CEILING PLAN FOR LOCATION OF LIGHTS, DIFFUSERS, CABLE TRAYS, ETC...
10. SPRINKLER CONTRACTOR SHALL ARRANGE AND PAY FOR A NEW HYDRANT FLOW TEST TO PREPARE TIER TWO SHOP DRAWINGS AND HYDRAULIC CALCULATIONS.
11. CONTRACTOR SHALL DETERMINE BEST LOCATION FOR ROUTING ALL ASSOCIATED SPRINKLER LINES. PIPE ROUTING SHOWN SHALL BE USED AND ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER TRADES, AND/OR TO MAINTAIN PROPER CLEARANCES SHALL BE PROVIDED. VERIFY EXISTING STRUCTURAL, MECHANICAL, ELECTRICAL INSTALLATIONS AND AVOID ANY/ALL OBSTRUCTIONS OR INTERFERENCES WITH FIRE PROTECTION PIPE ROUTING.
12. ALL NEW VALVE CONTROLLING THE FIRE PROTECTION SYSTEM TO BE ELECTRICALLY SUPERVISED. TYPE AND EXACT LOCATION OF FLOW, PRESSURE, AND SUPERVISORY SWITCHES SHALL BE ACCOMPLISHED BETWEEN THE RESPONSIBLE TRADES.
13. SEE PLANS FOR THE MANUFACTURER, MODEL, SIZE, TEMPERATURE RATING, AND FINISH OF ALL SPRINKLER HEADS.
14. WATER-FILLED SPRINKLER PIPE SHALL NOT BE INSTALLED IN ANY AREA SUBJECT TO FREEZING. THE OWNER SHALL PROVIDE SUFFICIENT HEAT AT ALL TIMES TO PREVENT WATER-FILLED SPRINKLER PIPE FROM FREEZING.
15. MATERIALS:
    A. ALL PIPING, FITTINGS, HEADS, AND EQUIPMENT SHALL CONFORM TO SPECIFICATIONS.
    B. ALL PIPING, FITTINGS, HEADS, AND EQUIPMENT SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER BEFORE BEING INSTALLED.
16. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING HEIGHTS AND CONSTRUCTION. WHERE WORK BETWEEN THIS DRAWING AND ARCHITECTURAL PLANS ARE IN CONFLICT, ADVISE PRIOR TO INSTALLATION OF PIPING.
17. CONTRACTOR SHALL NOT INSTALL ANY SPRINKLER PIPING THAT WILL INTERFERE WITH THE MAINTENANCE/REMOVAL OF HVAC EQUIPMENT, ELECTRICAL EQUIPMENT AND JUNCTION BOXES. NO PIPING SHALL BE LOCATED WITHIN "ELECTRICAL WORKING SPACE" OR "DEDICATED ELECTRICAL SPACE."
18. ALL SPRINKLER HEADS MOUNTED IN CEILING SHALL BE LOCATED A MINIMUM OF 4" AWAY FROM ANY WALLS, CEILING HEIGHT CHANGES, OR ANY OTHER VERTICAL INTERSECTING SURFACE.
19. PROVIDE HEAD GUARDS ON SPRINKLER HEADS IN MECHANICAL AREAS AND WHERE NOTED ON PLANS.
20. CUTTING OF STRUCTURAL AND/OR ARCHITECTURAL MEMBERS TO BE DONE ONLY WITH THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER AND ARCHITECT.
21. FIRESTOP ALL PENETRATIONS OF SMOKE/FIRE WALLS, CEILINGS, FLOORS, ROOFS, ETC. FLASH AND COUNTERFLASH ROOF PENETRATIONS.
22. PROVIDE ACCESS PANELS TO ALL VALVES ABOVE NON-ACCESSIBLE CEILINGS AND WITHIN CHASES.
23. PROVIDE STOCK OF EXTRA SPRINKLERS IN ACCORDANCE WITH NFPA-13 SECTION 6.2.9.
24. METHODS OF HANGING PIPES, HEADERS AND BRANCHES SHALL BE IN ACCORDANCE WITH NFPA-13.
25. SEISMIC BRACING SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH THE MASSACHUSETTS STATE BUILDING CODE AND NFPA 13.
26. ALL VALVES FOR FIRE SERVICE SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. AND FACTORY MUTUAL APPROVED. VALVES SHALL BE FACTORY MARKED "UL" AND "FM", 175 PSI WORKING PRESSURE.
27. ALL POWER WIRING SHALL BE ACCOMPLISHED UNDER THE ELECTRICAL DIVISION. ALL ALARM AND TAMPER SWITCHES SHALL BE PROVIDED, AND TESTED UNDER THIS SECTION OF THE SPECIFICATIONS WITH WIRING PROVIDED IN THE ELECTRICAL DIVISION. COORDINATE ALL ELECTRICAL ITEMS WITH ELECTRICAL CONTRACTOR.
28. PROVIDE A PERMANENTLY ATTACHED HYDRAULIC DESIGN INFORMATION SIGN STATING THE REQUIRED DESIGN CRITERIA FOR EACH HYDRAULICALLY DESIGNED SYSTEM.
29. PROVIDE LABELING OF ALL CONTROL VALVES, BACKFLOW PREVENTER, FIRE DEPARTMENT CONNECTION, ELECTRIC BELL, ETC AS REQUIRED BY NFPA-13 AND NFPA-14.
30. SPRINKLERS SHALL COVER THE ENTIRE AREA OF THE ROOM INCLUDING ALCOVES. SPRAY SHALL NOT BE BLOCKED BY WALLS OR PARTITIONS.

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PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

NUMBER
1805.00

DATE
04/10/2019

DRAWN BY

CHECKED BY
MAB

DRAWING
FIRE SUPPRESSION LEGEND, NOTES, & SCHEDULES

DRAWING NUMBER
FS001

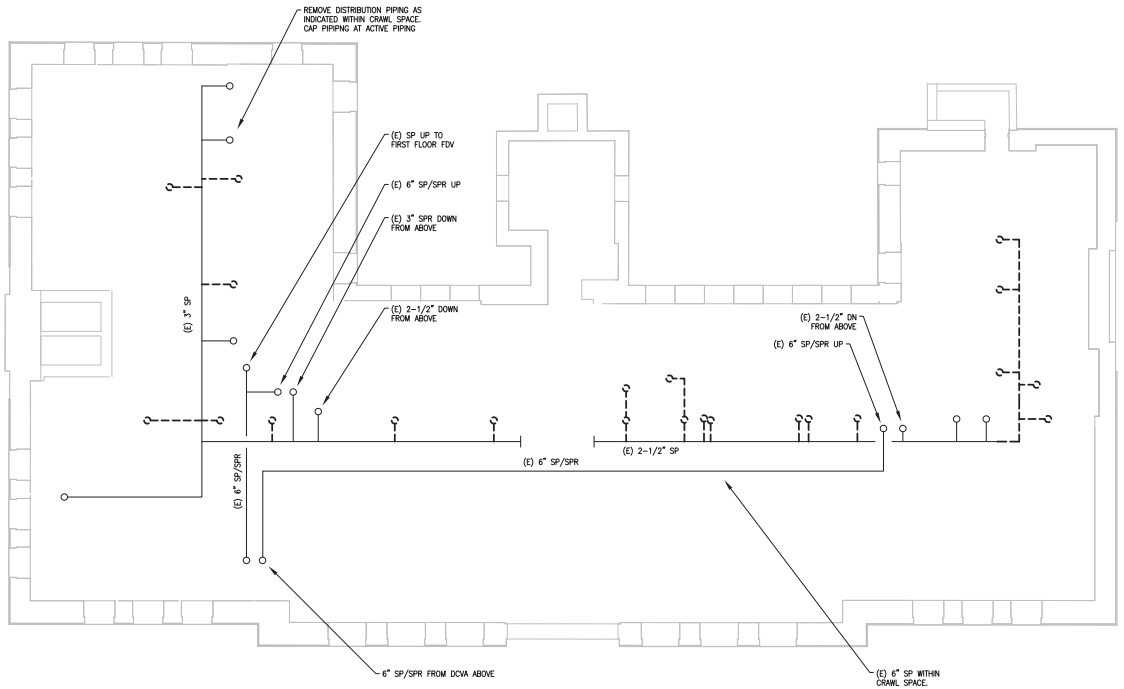
FIRE SUPPRESSION DEMOLITION NOTES:

1. BUILDING WILL BE OCCUPIED DURING THIS PROJECT.
2. FPC TO PROCEED WITHIN SUCH MANNER TO MINIMIZE DOWN TIME.
3. COORDINATE SYSTEM IMPAIRMENTS WITH OWNER, ARCHITECT, AND FIRE DEPARTMENT.
4. INSPECT EXISTING PIPING INDICATED TO BE ETR. REPORT DEFICIENCIES.

DEMOLITION LEGEND

- - - - - - DEMOLISH & DISPOSE

——— EXISTING TO REMAIN



1 FSD100 CRAWL SPACE FIRE SUPPRESSION DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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DRAWING CRAWL SPACE FIRE SUPPRESSION DEMOLITION PLAN
DRAWING NUMBER FSD 100

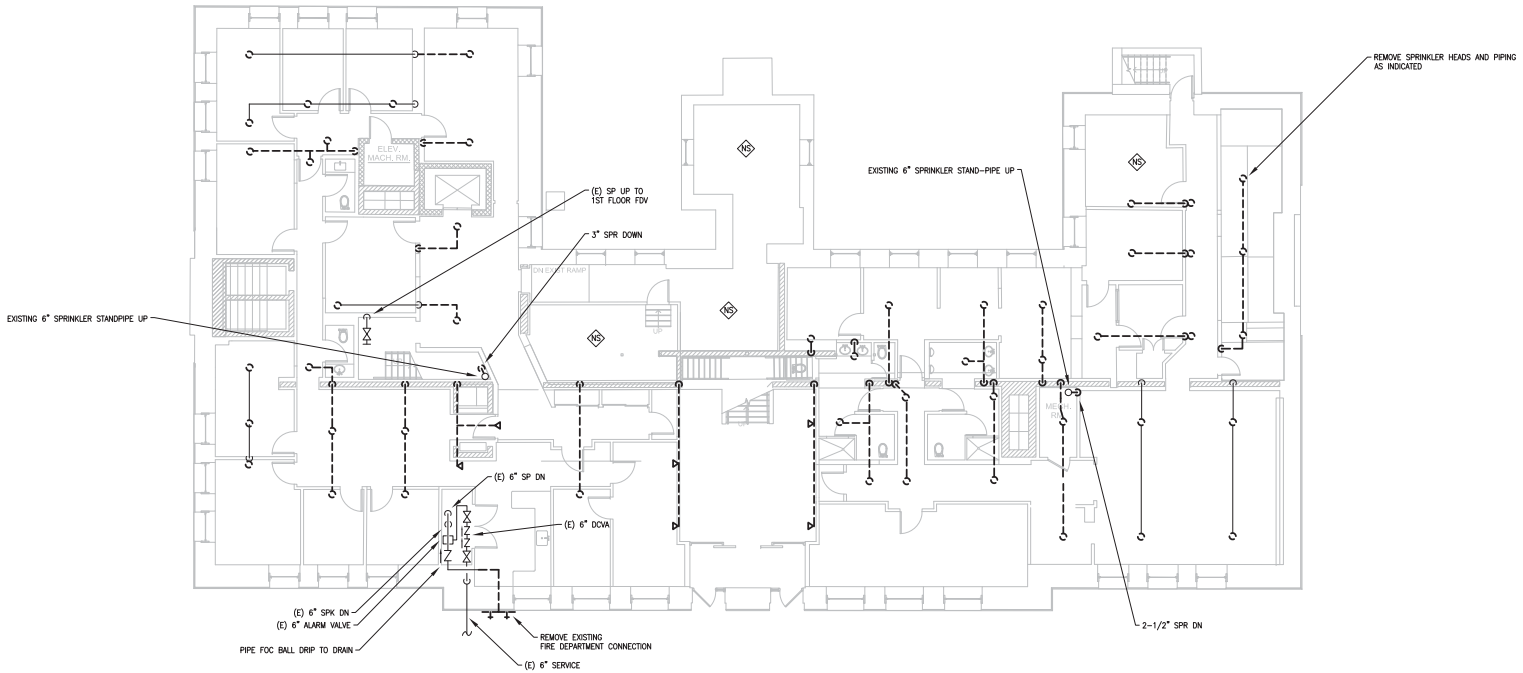
FIRE SUPPRESSION DEMOLITION NOTES:

1. BUILDING WILL BE OCCUPIED DURING THIS PROJECT.
2. FPC TO PROCEED WITHIN SUCH MANNER TO MINIMIZE DOWN TIME.
3. COORDINATE SYSTEM IMPAIRMENTS WITH OWNER, ARCHITECT, AND FIRE DEPARTMENT.
4. INSPECT EXISTING PIPING INDICATED TO BE ETR. REPORT DEFICIENCIES.

DEMOLITION LEGEND

- - - - - - DEMOLISH & DISPOSE

———— EXISTING TO REMAIN



1 / FSD101 GROUND FLOOR FIRE SUPPRESSION DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

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DRAWING GROUND FLOOR FIRE SUPPRESSION DEMOLITION PLAN

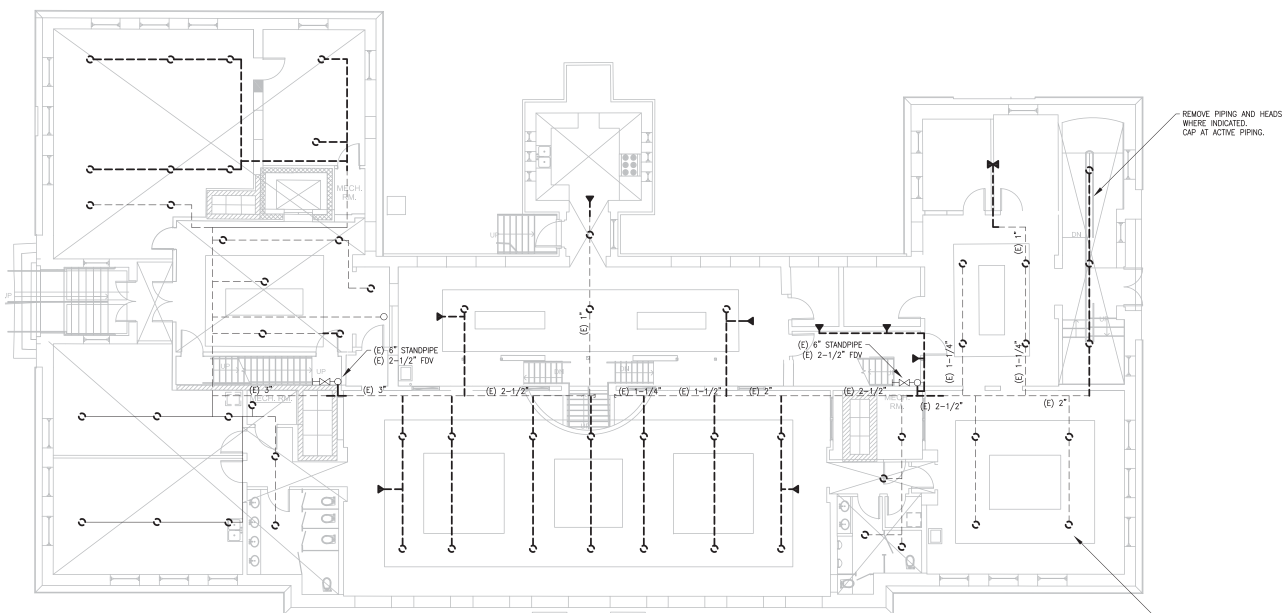
DRAWING NUMBER FSD 101

FIRE SUPPRESSION DEMOLITION NOTES:

1. REMOVE ALL EXISTING BRANCH PIPING AND HEADS WITHIN WORK AREA.
2. FPC TO PROCEED WITHIN SUCH MANNER TO MINIMIZE DOWN TIME.
3. COORDINATE SYSTEM IMPAIRMENTS WITH OWNER, ARCHITECT, AND FIRE DEPARTMENT.
4. INSPECT EXISTING PIPING INDICATED TO BE ETR. REPORT DEFICIENCIES.

DEMOLITION LEGEND

- - - - DEMOLISH & DISPOSE
———— EXISTING TO REMAIN



1 FSD102 FIRST FLOOR FIRE SUPPRESSION DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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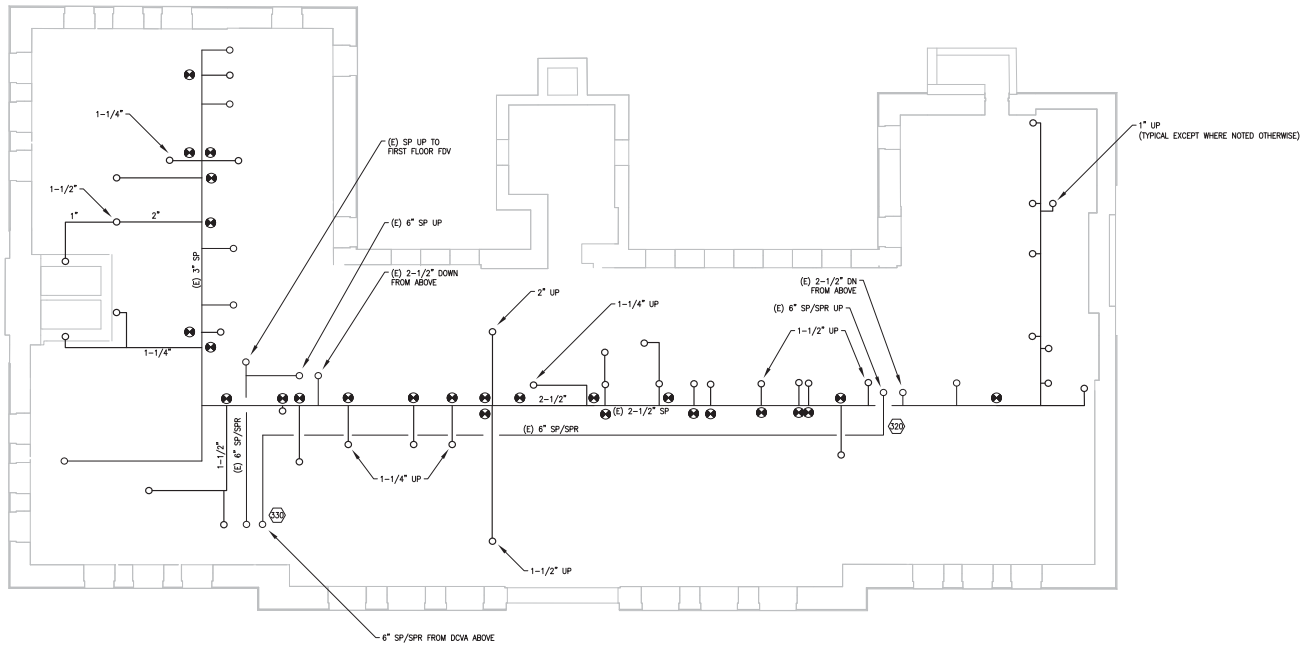
DRAWING FIRST FLOOR FIRE SUPPRESSION DEMOLITION PLAN

DRAWING NUMBER FSD 102

FIRE SUPPRESSION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURERS' INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
4. FPC TO PROVIDE REQUIRED FIRESTOPPING AND AIR SEALING.
5. PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
6. PROVIDE NFPA 13-2013 COMPLIANT SPRINKLER SYSTEM WITHIN AREAS OF RENOVATION AND WHERE NOTED. PROVIDE FULL SPRINKLER COVERAGE IN ALL AREAS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
7. ALL PIPING SHALL BE SCHEDULE 40 BLACK STEEL.
8. FPC TO PROVIDE CODE REQUIRED EQUIPMENT LABELS AND SIGNS FOR ALL FIRE PROTECTION EQUIPMENT.
9. ALL PIPING SHALL BE 1" UNLESS NOTED OTHERWISE.
10. AT DROP CEILINGS, ALL HEADS SHALL BE LOCATED AT CENTER OF TILES UNLESS NOTED OTHERWISE.
11. WHERE PIPING IS INDICATED TO BE WITHIN FLOOR STRUCTURE AND RUN PERPENDICULAR TO STRUCTURAL MEMBERS THE FPC SHALL CORE STRUCTURE TO ALLOW FOR INSTALLATION OF PIPING. PRIOR TO CUTTING OF ANY STRUCTURE FPC SHALL COORDINATE PENETRATION LOCATIONS WITH GC.



1 FS100 CRAWL SPACE FIRE SUPPRESSION PLAN
SCALE: 1/8" = 1'-0"

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PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION

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DRAWING NUMBER FS100
DRAWING CRAWL SPACE FIRE SUPPRESSION PLAN

FIRE SUPPRESSION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURERS' INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
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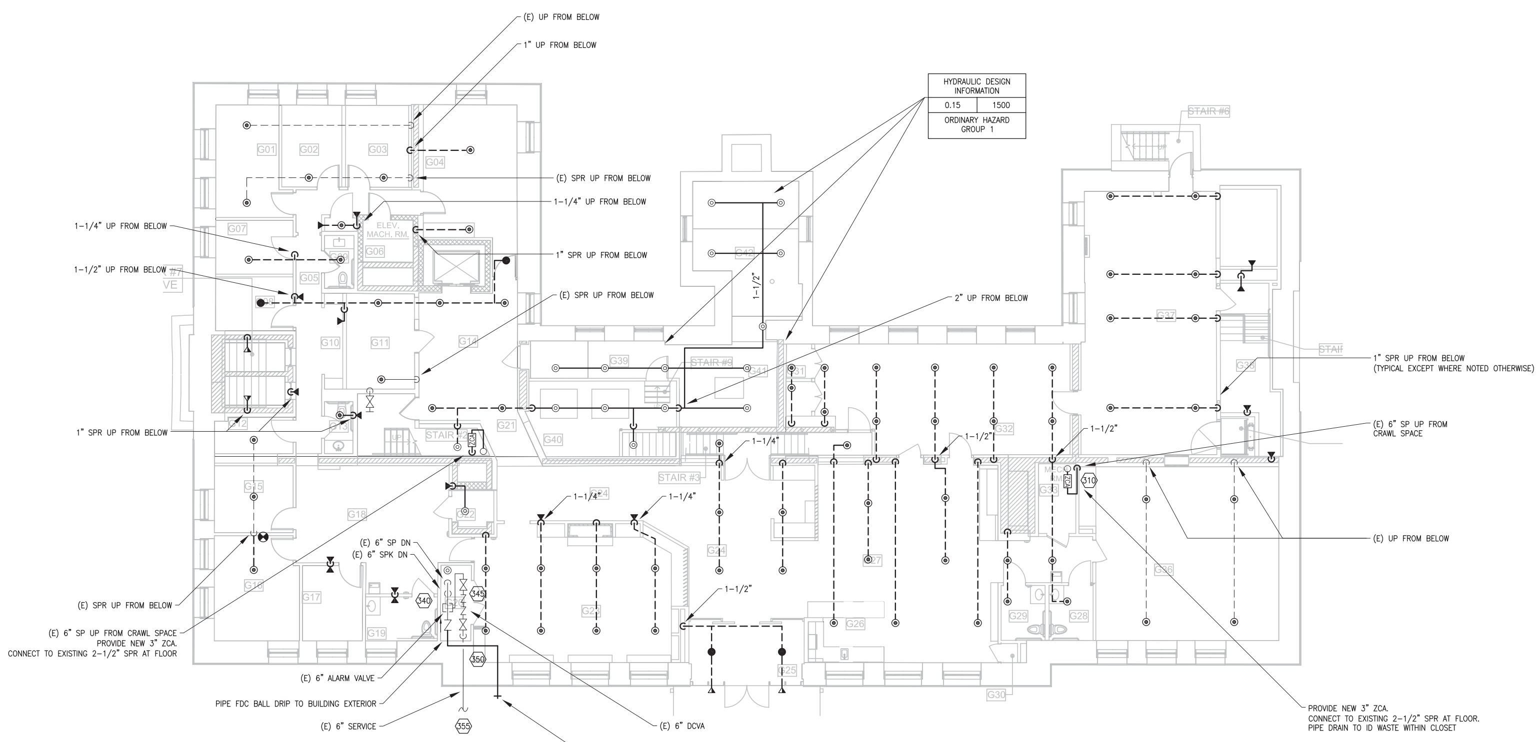
11. WHERE PIPING IS INDICATED TO BE WITHIN FLOOR STRUCTURE AND RUN PERPENDICULAR TO STRUCTURAL MEMBERS THE FPC SHALL CORE STRUCTURE TO ALLOW FOR INSTALLATION OF PIPING. PRIOR TO CUTTING OF ANY STRUCTURE FPC SHALL COORDINATE PENETRATION LOCATIONS WITH GC.
12. SEE ARCHITECTURAL RCP FOR EXACT LOCATION OF SPRINKLER HEADS.

HYDRAULIC DESIGN INFORMATION	
0.10	1500
LIGHT HAZARD	

FOR ALL AREAS EXCEPT WHERE NOTED OTHERWISE



1 FS101 GROUND FLOOR FIRE SUPPRESSION PLAN
SCALE: 1/8" = 1'-0"

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PROJECT
ARLINGTON CENTRAL SCHOOL RENOVATION

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DRAWING
GROUND FLOOR FIRE SUPPRESSION PLAN

DRAWING NUMBER
FS101

FIRE SUPPRESSION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURERS' INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
4. FPC TO PROVIDE REQUIRED FIRESTOPPING AND AIR SEALING.
5. PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
6. PROVIDE NFPA 13-2013 COMPLIANT SPRINKLER SYSTEM WITHIN AREAS OF RENOVATION AND WHERE NOTED. PROVIDE FULL SPRINKLER COVERAGE IN ALL AREAS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
7. ALL PIPING SHALL BE SCHEDULE 40 BLACK STEEL.
8. FPC TO PROVIDE CODE REQUIRED EQUIPMENT LABELS AND SIGNS FOR ALL FIRE PROTECTION EQUIPMENT.
9. ALL PIPING SHALL BE 1" UNLESS NOTED OTHERWISE.
10. AT DROP CEILINGS, ALL HEADS SHALL BE LOCATED AT CENTER OF TILES UNLESS NOTED OTHERWISE.
11. WHERE PIPING IS INDICATED TO BE WITHIN FLOOR STRUCTURE AND RUN PERPENDICULAR TO STRUCTURAL MEMBERS THE FPC SHALL CORE STRUCTURE TO ALLOW FOR INSTALLATION OF PIPING. PRIOR TO CUTTING OF ANY STRUCTURE FPC SHALL COORDINATE PENETRATION LOCATIONS WITH GC.
12. SEE ARCHITECTURAL RCP FOR EXACT LOCATION OF SPRINKLER HEADS.
13. REPLACE ALL SPRINKLER HEADS ON THIS FLOOR. PROVIDE NEW PIPING AS INDICATED.

HYDRAULIC DESIGN INFORMATION	
0.10	1500
LIGHT HAZARD	

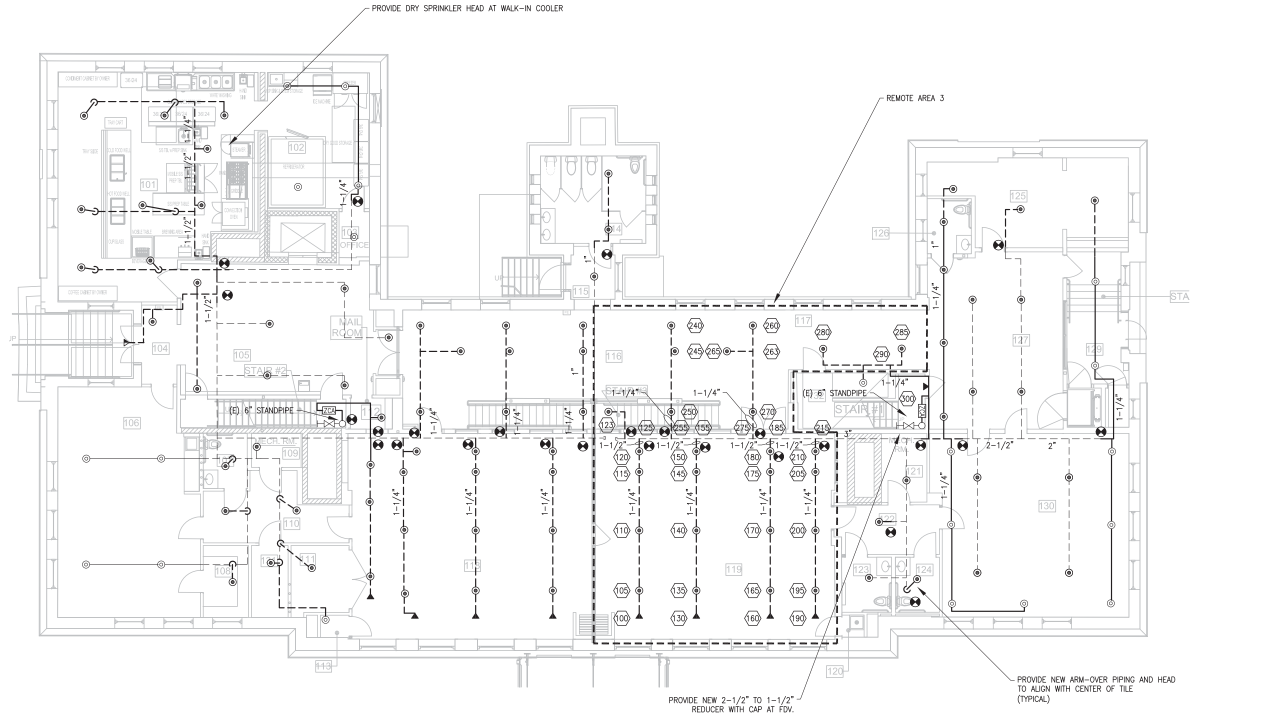
FOR ALL AREAS EXCEPT WHERE NOTED OTHERWISE

HYDRAULIC SUMMARY TABLE

REMOTE AREA 4 – LIGHT HAZARD

DESIGN AREA: 1500 SQ.FT.
MINIMUM DENSITY: 0.1 GPM/SQ FT

CALCULATED FLOW: – GPM @ – PSI
INCLUDING 100 GPM HOSE ALLOWANCE



1 FS102 FIRST FLOOR FIRE SUPPRESSION PLAN
SCALE: 1/8" = 1'-0"

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PROJECT: ARLINGTON CENTRAL SCHOOL RENOVATION
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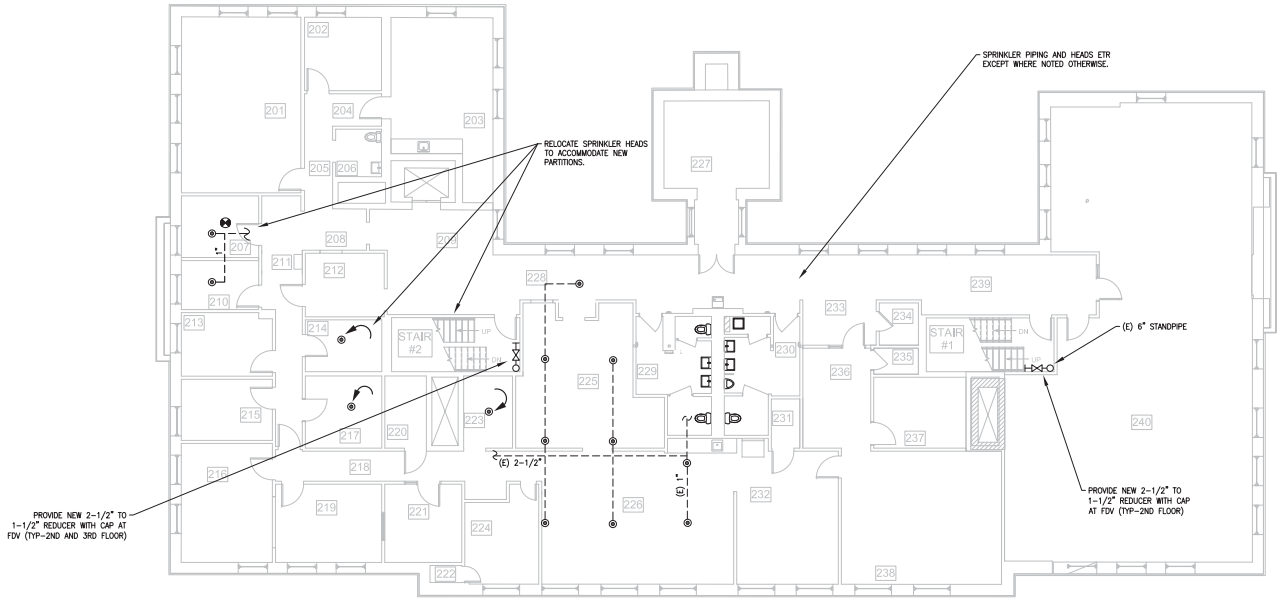
DRAWING: FIRST FLOOR FIRE SUPPRESSION PLAN
DRAWING NUMBER: FS102



1 FS103 SECOND FLOOR FIRE SUPPRESSION PLAN
SCALE: 1/8" = 1'-0"

FIRE SUPPRESSION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURERS' INSTRUCTIONS.
3. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
4. FPC TO PROVIDE REQUIRED FIRESTOPPING AND AIR SEALING.
5. PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
6. PROVIDE NFPA 13-2013 COMPLIANT SPRINKLER SYSTEM WITHIN AREAS OF RENOVATION AND WHERE NOTED. PROVIDE FULL SPRINKLER COVERAGE IN ALL AREAS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
7. ALL PIPING SHALL BE SCHEDULE 40 BLACK STEEL.
8. FPC TO PROVIDE CODE REQUIRED EQUIPMENT LABELS AND SIGNS FOR ALL FIRE PROTECTION EQUIPMENT.
9. ALL PIPING SHALL BE 1" UNLESS NOTED OTHERWISE.
10. AT DROP CEILINGS, ALL HEADS SHALL BE LOCATED AT CENTER OF TILES UNLESS NOTED OTHERWISE.
11. WHERE PIPING IS INDICATED TO BE WITHIN FLOOR STRUCTURE AND RUN PERPENDICULAR TO STRUCTURAL MEMBERS THE FPC SHALL CORE STRUCTURE TO ALLOW FOR INSTALLATION OF PIPING. PRIOR TO CUTTING OF ANY STRUCTURE FPC SHALL COORDINATE PENETRATION LOCATIONS WITH OC.
12. SEE ARCHITECTURAL RCP FOR EXACT LOCATION OF SPRINKLER HEADS.

HYDRAULIC DESIGN INFORMATION	
0.10	1500
LIGHT HAZARD	

FOR ALL AREAS EXCEPT WHERE NOTED OTHERWISE

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DRAWING SECOND & THIRD FLOOR FIRE SUPPRESSION PLAN
DRAWING NUMBER FS103

PLUMBING LEGEND

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BFP	BACKFLOW PREVENTER
BWV	BACKWATER VALVE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COND.	CONDENSATE
CW	COLD WATER
DDC	DIRECT DIGITAL CONTROL
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DLW	DEDICATED LAUNDRY WASTE
DU	DWELLING UNIT
(E)	EXISTING
ETR	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
FD	FLOOR DRAIN
FP	FIREPLACE
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR (CONSTRUCTION MANAGER)
ID	INDIRECT WASTE
MC	MECHANICAL CONTRACTOR (FILED SUB-BID HVAC CONTRACTOR)
NIC	NOT IN CONTRACT
NPW	NON-POTABLE WATER
OSD	OVERFLOW STORM DRAIN
PROVIDE	SUPPLY AND INSTALL
PC	PLUMBING CONTRACTOR
POU	POINT-OF-USE
PRV	PRESSURE REDUCING VALVE
RD	ROOF DRAIN
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
SD	STORM DRAIN
TYP	TYPICAL
UDHW	UNTEMPERED DOMESTIC HOT WATER
V	VENT
VTR	VENT THROUGH ROOF
W	SANITARY WASTE
P-1	PLUMBING FIXTURE TAG (SEE SCHEDULE)
(symbol)	CONNECT TO EXISTING
(S)	TEMPERATURE SENSOR
(A)	AQUASTAT
(P)	PRESSURE GAUGE

NEW WORK (BOLD LINE)
EXISTING WORK (LIGHT OR SHADED LINE)
EQUIPMENT TAG (SEE SCHEDULE) DOES NOT REQUIRE ELECTRICAL
EQUIPMENT TAG (SEE SCHEDULE) REQUIRES ELECTRICAL POWER
PUMP/CIRCULATOR
FD FD — FLOOR DRAINS
AD — AREA DRAINS
RD — ROOF DRAIN
CO — END CLEAN OUT
CO — FLOOR CLEAN OUT; PROVIDE BRASS COVER PLATE AT ALL FINISHED LOCATIONS
VACUUM BREAKER
QUARTER-TURN HOSE BIBB WITH CAP AND CHAIN
AIR VENT (REBUILDABLE TYPE)
BALL VALVE WITH HOSE THREAD, BRASS CAP AND CHAIN
RELIEF VALVE
PITCH DIRECTION
EMERGENCY DRENCH SHOWER & EYE WASH COMBO
PEX MANIFOLD (PC TO DETERMINE NUMBER OF BRANCHES)
CONCENTRIC BOILER VENT
FLEXIBLE CONNECTOR
(W) — WATER METER
(G) — GAS METER
THERMOMETER
OVERFLOW DOWNSPOUT NOZZLE

— SD — STORM DRAIN PIPING
— C — CONDENSATE DRAIN PIPING
— G — LOW PRESSURE GAS PIPING
—EPG— ELEVATED PRESSURE GAS PIPING
— GV — GAS VENT LINE
COLD WATER PIPING
DOMESTIC HOT WATER PIPING
DOMESTIC HOT WATER RECIRCULATION PIPING
— CA — COMBUSTION AIR LINE
— CV — COMBUSTION VENT LINE
VENT LINE
BURIED VENT LINE
WASTE PIPING
BURIED WASTE PIPING
DROP, PIPE DOWN
RISER, PIPE UP
PIPE DOWN FROM TWO SIDES
BALL VALVE W/ DRAIN
BALL VALVE
BALANCING/ISOLATION VALVE
PRESSURE REDUCING VALVE
SPRING CHECK VALVE
RPZ — REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER
THERMOSTATIC 3-WAY VALVE
UNION
FLANGE
GAS SHUT OFF VALVE
BWV — BACKWATER VALVE
STRAINER WITH BALL VALVE W/ 3/4" HOSE CONNECTION, BRASS CAP AND CHAIN

GENERAL PLUMBING NOTES

1. GENERAL CONDITIONS & SPECIFICATIONS: THE GENERAL CONDITIONS, AND SPECIFICATIONS ARE PART OF THIS WORK. IT IS THE PLUMBING CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND BE FAMILIAR WITH THESE CONDITIONS & SPECIFICATIONS.
2. CODES AND ORDINANCES: INSTALLATION OF THE SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NATIONAL MECHANICAL CODE, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, CODES, AND ORDINANCES.
3. REQUIREMENTS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES AND CERTIFICATES.
4. DESIGN: EQUIPMENT AND ACCESSORIES NOT SPECIFICALLY DESCRIBED OR IDENTIFIED BY MANUFACTURER'S CATALOG NUMBERS SHALL BE DESIGNED IN CONFORMITY WITH ASME, ASPE, AGA, UL OR OTHER APPLICABLE TECHNICAL STANDARDS, SUITABLE FOR MAXIMUM REQUIRED WORKING PRESSURE AND SHALL HAVE NEAT AND FINISHED APPEARANCE.
5. INSTALLATION: ERECT EQUIPMENT IN NEAT AND WORKMANLIKE MANNER; INSTALL SO THAT CONNECTING AND DISCONNECTING OF PIPES, EQUIPMENT AND ACCESSORIES CAN BE MADE READILY AND SO THAT ALL PARTS ARE EASILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER AND THE BEST STANDARD PRACTICE FOR THIS TYPE OF WORK.
6. STANDARD PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY FITTING, CONNECTION, OR APPLIANCE. THIS CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS IN ACCORDANCE WITH THE BEST STANDARD PRACTICE OF THE TRADE.
7. EQUIPMENT LOCATION: THE P.C. SHALL VERIFY THE LOCATIONS AND MOUNTING HEIGHTS OF ALL EQUIPMENT AND MATERIALS, AND THE EXACT ROUTING OF ALL PIPES, WITH THE OWNER'S REPRESENTATIVE IN THE FIELD, PRIOR TO COMMENCING ANY WORK. ANY CONFLICTS WITH LOCATIONS, OR PROBLEMS ENCOUNTERED WITH ROUTING, SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION. COORDINATE ELECTRICAL CHARACTERISTICS FOR ALL EQUIPMENT WITH E.C. BEFORE ORDERING EQUIPMENT. COORDINATE WITH M.C. FOR CW FEEDS, CONDENSATE, DHW, ETC.
8. MATERIALS: ALL MATERIALS, FIXTURES, AND EQUIPMENT SHALL BE NEW WITHOUT IMPERFECTIONS AND SHALL BE DELIVERED, ERECTED, CONNECTED, AND FINISHED IN EVERY DETAIL. WHEREVER POSSIBLE, ALL TRIM, ACCESSORIES, AND PARTS SHALL BE OF THE SAME MANUFACTURER AS THE RELATED EQUIPMENT AND FIXTURES.
9. PLUMBING: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH COMMONWEALTH OF MASSACHUSETTS FUEL GAS AND PLUMBING CODE, 248 CMR, & NFPA 54.
10. ELECTRICAL: ALL ELECTRICAL SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL LOCAL REQUIREMENTS.
11. GENERAL COORDINATION: EXAMINE ALL DRAWINGS AND OTHER SECTIONS OF THE SPECIFICATIONS FOR REQUIREMENTS WHICH AFFECT THE WORK OF THIS SECTION. COORDINATE WORK WITH THAT OF OTHER TRADES AFFECTING, OR AFFECTED BY, WORK OF THIS SECTION. COOPERATE WITH OTHER TRADES TO ENSURE THE STEADY PROGRESS OF THE WORK.
12. PROTECTION OF EQUIPMENT AND MATERIALS: RESPONSIBILITY FOR CARE AND PROTECTION OF ALL MATERIALS AND WORK RESTS WITH THIS CONTRACTOR AT ALL TIMES UNTIL IT HAS BEEN APPROVED.
13. GUARANTEE: ALL NEW COMPONENTS OF THE INSTALLATION SHALL BE GUARANTEED IN WRITING BY THIS CONTRACTOR TO BE FREE FROM DEFECTS OF MANUFACTURE AND INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF WRITTEN ACCEPTANCE OF THE ENTIRE BUILDING BY THE ENGINEER. ANY DEFECTS FOUND SHALL BE REPAIRED BY THE PLUMBING CONTRACTOR AT THEIR OWN EXPENSE.
14. NOTIFICATION: THE P.C. SHALL NOTIFY THE ENGINEER UPON: (1) COMPLETION OF ALL ROUGH PIPING, BEFORE CLOSURE OF ANY TRENCHES, OPEN WALL CAVITIES OR CHASES. (2) UPON "SUBSTANTIAL COMPLETION" OF ALL SYSTEMS INCLUDING OPERATIONAL SYSTEMS AND FINISH WORK. AFTER "SUBSTANTIAL COMPLETION", THE ARCHITECT WILL PREPARE A PUNCH LIST OF ITEMS TO BE CORRECTED. THE P.C. SHALL CORRECT ANY DEFICIENCIES FOUND PROMPTLY, AT THEIR OWN EXPENSE.
15. FINAL COMPLETION: THE WORK SHALL NOT BE CONSIDERED COMPLETE UNTIL THE PUNCH LIST IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND ALL FINAL INSPECTIONS HAVE BEEN COMPLETED.
16. THE REQUIREMENTS OF THE STRETCH CODE HAVE BEEN ADOPTED BY THE LOCAL AUTHORITY, APPENDIX 115 AA, 780CMR. ALL WORK PERFORMED MUST CONFORM TO THESE REQUIREMENTS.

PLUMBING FIXTURE SCHEDULE

[1][2][3][4][5][10]

DWG ID	FIXTURE	MANUFACTURER	MODEL NO	REMARKS	GPM GPF	WASTE	VENT	CW	DHW
P-1	ADA TOILET SEAT	AMERICAN STANDARD AMERICAN STANDARD	211AA.104 5901.100	CHAMPION PRO, FLOOR-MOUNTED, TANK-TYPE, TWO-PIECE, 12" ROUGH, EVERCLEAN, FULLY-GLAZED TRAPWAY, MaP: 1000g, ADA-COMPLIANT HEAVY DUTY, OPEN-FRONT, LESS LID, SELF-SUSTAINING HINGE,EVERCLEAN SURFACE	1.28 –	3" –	1-1/2 –	1/2" –	– –
P-2	ADA LAVATORY FAUCET	AMERICAN STANDARD SYMMONS	0496.221 OVALYN S-20-2-BH-G-FR-VP	UNDERMOUNT, VITREOUS CHINA, UNGLAZED RIM, FRONT OVERFLOW, 19-1/4"x16-1/4" (FOR 24" COUNTER DEPTH) [9] DECK-MOUNT, SINGLE LEVER HANDLE, HANDLE LIMIT STOP, VANDAL-RESISTANT AERATOR, GRID STRAINER DRAIN ASSEMBLY	– 0.5	1-1/2" –	1-1/4" –	– 1/2"	– 1/2"
P-3	ART SINK FAUCET DRAIN	ELKAY ELKAY ELKAY	ECTRU35179T CROSSTOWN LK412 LK35	UNDERMOUNT, SINGLE BOWL, 18 GA SS, REAR CENTER DRAIN, 36-1/2"x18-1/2"x9", SOUND GUARD [8] CONCEALED UNDERMOUNT, DUAL-HANDLE, ROGIG OR SWING GOOSENECK, VANDAL-RESISTANT AERATOR, 8" CENTERS [11] 3-1/2" FITTING, STAINLESS STEEL, BODY, STRAINER BASKET, TAILPIECE	– 1.5 –	1-1/2" – –	1-1/4" – –	– 1/2" –	– 1/2" –
P-4	CAFE SINK FAUCET	ELKAY SYMMONS	ELUH322120RDBG S-2302-PD-1.5 SERENO	UNDERMOUNT, OFFSET 70/30 DOUBLE BOWL, 18 GA, 31-1/2"x21-1/8"x10", SIDES & BOTTOM PADS, LK99 DRAINS INCLUDED [8] DECK-MOUNT, SINGLE HANDLE, SINGLE HOLE, 2-MODE PULL-DOWN SPRAYER,	– 1.5	1-1/2" –	1-1/4" –	– 1/2"	– 1/2"
P-5	DRINKING FOUNTAIN	HALSEY TAYLOR	HTHB-OVLSER-I	WALL-MOUNT, BI-LEVEL, COOLER, NON-FILTERED, SENSOR-ACTIVATED BOTTLE FILLER, 8 GPH, FRONT BUTTON BUBBLER ACTIVATOR	–	1-1/2"	1-1/4"	1/2"	–
P-5A	DRINKING FOUNTAIN	HALSEY TAYLOR	HTHBHVR8-NF	HYDROBOOST, VANDAL-RESISTANT BOTTLE-FILLING STATION & BUBBLER, SINGLE ADA COOLER, NON-FILTERED, 8 GPH, FRONT BUTTON	–	1-1/2"	1-1/4"	1/2"	–
P-6	JANITOR'S SINK FAUCET	FIAT FIAT	MSB2424 830 AA	MOLDED STONE, FLOOR-MOUNTED, 10" HIGH WALLS, 1" WIDE SHOULDERS, STAINLESS STEEL DOME STRAINER, STAINLESS STEEL LINT BASKET, STAINLESS STEEL WALL GUARD WALL-MOUNT, VACUUM BREAKER, ADJUSTABLE WALL BRACE, PAIL HOOK, 3/4" HOSE THREAD ON SPOUT, 4-ARM HANDLES, 3" HEAVY DUTY 5/8" RUBBER HOSE, STAINLESS STEEL BRACKET WITH RUBBER GRIP	– –	3" –	1-1/2" –	– 1/2"	– 1/2"
P-7	FLOOR SINK	J R SMITH	3141Y-CI-U-L-12	CAST IRON FLANGED RECEPTOR, SEEPAGE HOLES, ACID-RESISTANT COATED INTERIOR, 12-1/2" SQUARE, 6" DEEP, NICKEL BRONZE TOP 1/2 GRATE, SEDIMENT BUCKET, VANDAL-PROOF SCREWS, SPEEDI-SET [7]	–	2"	1-1/4"	–	–
P-8	FLOOR DRAIN TRAP PRIMER	J R SMITH J R SMITH	2005-P050-U 2699	DUCO CAST IRON BODY, FLASHING COLLAR, ADJUSTABLE STRAINER HEAD, 1/2" TRAP PRIMER CONNECTION, VANDAL-PROOF SCREWS AUTOMATIC, CAST BRONZE, 1/2" CONNECTION	– –	2" –	1-1/4" –	– 1/2"	– –
P-9	INTERIOR HOSE BIBB	WOODFORD	MODEL 84	ANTI-SIPHON, CLOSE-COUPLED, BRASS VALVE BODY, HARDENED SS STEM, TEE-KEY OPERATED	–	–	–	1/2"	–

[1] PROVIDE QUARTER-TURN STOP VALVES. FOR CONCEALED-TYPE FIXTURES PROVIDE INTEGRAL STOP VALVES OR CONCEALED STOP VALVES WITH ACCESS PANEL. FOR EXPOSED FIXTURES PROVIDE CHROME-PLATED VALVES, PIPING, AND ESCUTCHEONS FOR EACH FIXTURE.
[2] PROVIDE AIR CHAMBERS @ CONNECTIONS TO ALL FIXTURES.
[3] ARCHITECT WILL SELECT COLOR AND FINISH DURING SUBMITTAL REVIEW. COLOR AND FINISH WILL BE SELECTED FROM MANUFACTURER'S STANDARD OPTIONS UNLESS SPECIFICALLY NOTED OTHERWISE.
[4] SELECT HANDEDNESS OF FIXTURE SUCH THAT HANDLE IS LOCATED ON APPROACH SIDE
[5] ALL PLUMBING FIXTURES SHALL BE LEAD-FREE AS REQUIRED BY THE "REDUCTION OF LEAD IN DRINKING WATER ACT" 2011.
[6] FIXTURE SHALL BE EPA WATERSENSE LABELLED.
[7] PROVIDE 1/2" PIPING FROM PRIMER TO FLOOR DRAIN & FLOOR SINK TRAP. SEE 4/P202
[8] PROVIDE ACCESSIBLE CLEANOUT BELOW SINK.
[9] PROVIDE TRU-BRO PIPE PROTECTION PADDING
[10] VERIFY MEASUREMENT/SIZE IN FIELD BEFORE ORDERING.
[11] PROVIDE MANUFACTURER'S INSERT TO LIMIT FLOW TO 1.5 GPM.

PLUMBING EQUIPMENT SCHEDULE

REQUIRES ELECTRICITY — DOES NOT REQUIRE ELECTRICITY [1]

DWG ID	EQUIPMENT	MANUFACTURER	MODEL NUMBER	PERFORMANCE	ELECTRICAL DATA V/ø/Hz Hp
DWHR-1	DHW RECIRCULATOR	GRUNDFOS	ALPHA 15-55 SF/LC	STAINLESS STEEL, LINE CORD, 1 GPM @ 18 FT/HD	115/1/60 5-45W 0.65A
GT-1	GREASE TRAP	SCHIER	GB-3	HIGH-DENSITY POLYETHYLENE, 50 GPM, 272 LB GREASE CAPACITY, 40 GAL LIQUID CAPACITY, LIFETIME GUARANTEE [2]	N/A
PEX-1	POTABLE EXPANSION TANK	TACO	PAX30	STEEL SHELL, REMOVABLE HEAVY DUTY BUTYL BLADDER, 8 GAL VOL 5 GAL ACCEPTANCE, PRE-CHARGED	N/A
TV-1	DHW TEMPERING VALVE	LEONARD	TM-820B-LF-DT	HIGH LOW SYSTEM, LARGE-TYPE & SMALL-TYPE THERMOSTATIC MIXING VALVES WITH INLET CHECK STOPS & OUTLET BALL VALVES, 1" INLETS, 1-1/4" OUTLETS, 1 GPM MIN FLOW, LOCKING TEMPERATURE REGULATORS, LOW LEAD, 10 PSI DROP @ 40 GPM	N/A
TV-2	POU TEMPERING VALVE	LEONARD	MODEL 170-LF	UNDER-SINK THERMOSTATIC MIXING VALVE, LEAD-FREE BODY, INTEGRAL CHECK VALVES, LOCKED TEMP ADJUSTMENT, MIN/MAX FLOW 0.25/5.0 GPM, Cv=0.35, TEMP RANGE 90°F-140°F	N/A
UDHWR-1	UNTEMPERED DHW RECIRCULATOR	GRUNDFOS	ALPHA 15-55 SF/LC	STAINLESS STEEL, LINE CORD, 2 GPM @ 16 FT/HD	115/1/60 5-45W 0.65A

[1] COORDINATE ALL ELECTRICAL CHARACTERISTICS W/ EC BEFORE ORDERING EQUIPMENT.
[2] PROVIDE PUMPOUT PORT KIT ACCESSORY PART #8400-011-02

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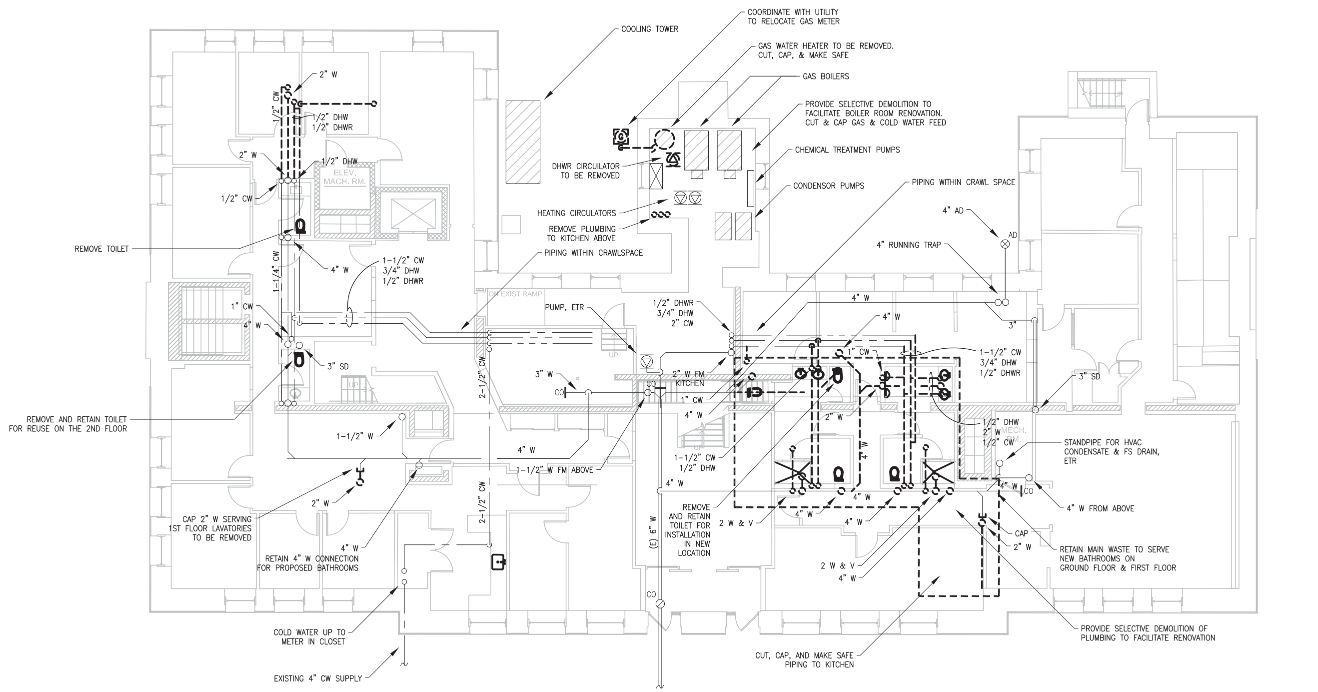
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION
NUMBER 1805.00
DATE 04/10/2019
DRAWN BY RWS
CHECKED BY GAC
DRAWING PLUMBING LEGEND, NOTES, & SCHEDULES
DRAWING NUMBER P001

PLUMBING DEMOLITION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. PC TO CUT, CAP AND MAKE SAFE ALL PLUMBING FOR REMOVAL & PROPER DISPOSAL BY GC.
4. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- - - - -	DEMOLISH & DISPOSE
———	EXISTING TO REMAIN (ETR)



1 PD100 GROUND FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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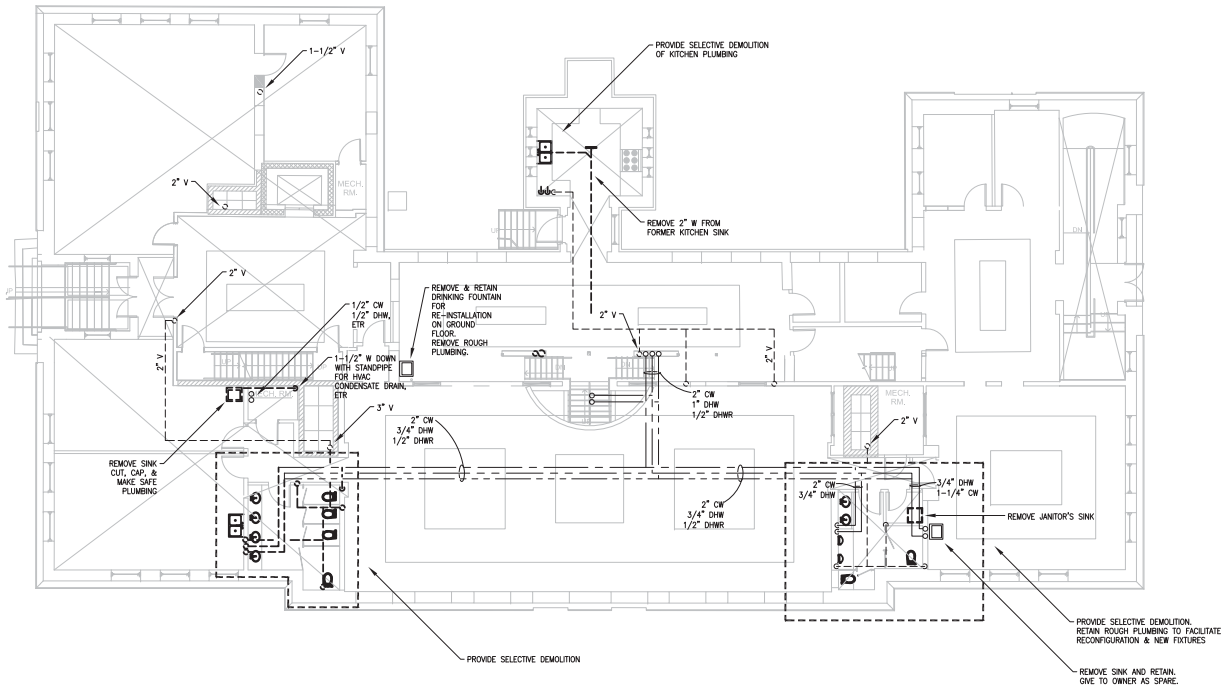
DRAWING NUMBER PD100
DRAWING GROUND FLOOR PLUMBING DEMOLITION PLAN



1 PD101 FIRST FLOOR PLUMBING DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

PLUMBING DEMOLITION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. PC TO CUT, CAP AND MAKE SAFE ALL PLUMBING FOR REMOVAL & PROPER DISPOSAL BY GC.
4. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- - - - - - DEMOLISH & DISPOSE

——— EXISTING TO REMAIN (ETR)

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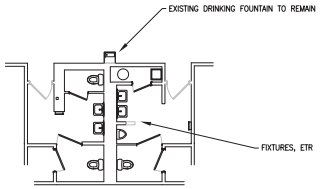
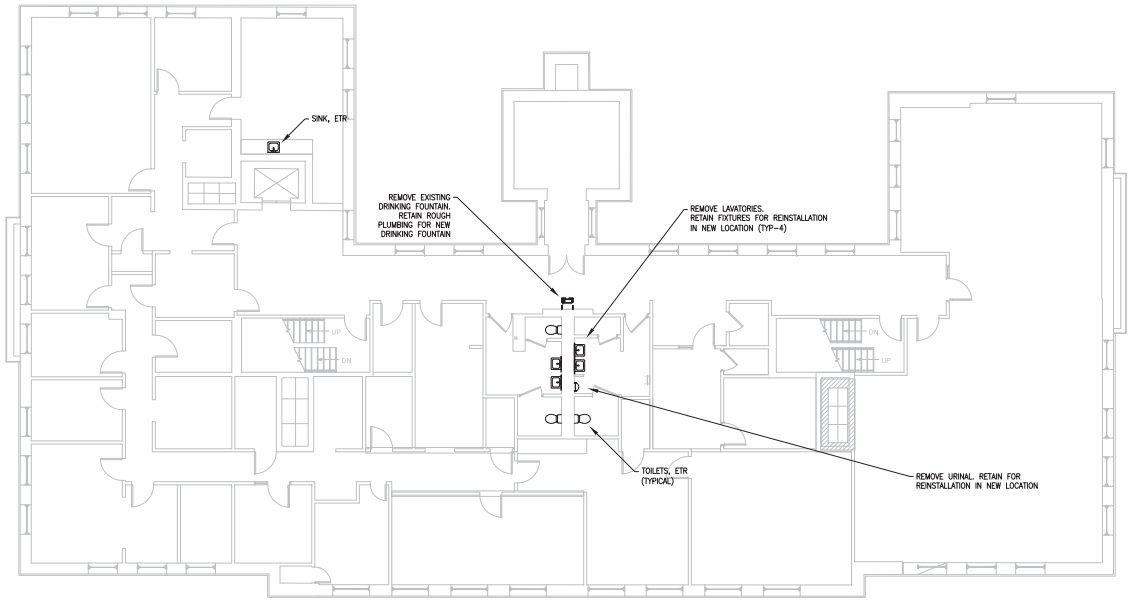
DRAWING FIRST FLOOR PLUMBING DEMOLITION PLAN

DRAWING NUMBER PD101



2 PD102 THIRD FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



1 PD102 SECOND FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

PLUMBING DEMOLITION NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. CONTRACTOR TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
3. DEMOLISH AND DISPOSE OF EXISTING DHW TANK AND TEMPERING VALVE.
4. DEMOLISH AND LEGALLY DISPOSE OF ALL UNUSED PLUMBING, PIPING, DEVICES, SUPPORTS, AND MISCELLANEOUS EQUIPMENT. COORDINATE W/ OWNER.
5. EC TO CUT, CAP AND MAKE SAFE ALL ELECTRICAL CONDUIT & WIRING NECESSARY FOR THIS WORK.
6. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING STRUCTURE & EQUIPMENT TO REMAIN AND PATCHING ALL PENETRATIONS & HOLES IN FLOORS, WALLS, AND CEILINGS DUE TO DEMOLITION. MATCH SURROUNDING FINISH OR REPLACE.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATING W/ THE GC AND OWNER FOR SCHEDULING, ACCESS, & TENANT NOTIFICATION FOR ALL WORK AND SUSPENSION OF SERVICES.
8. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND COORDINATING W/ THE GC, MC, EC & OWNER TO DETERMINE EXACT QUANTITIES AND LOCATIONS PRIOR TO BIDDING.

DEMOLITION LEGEND

- - - - - - DEMOLISH & DISPOSE
——— EXISTING TO REMAIN

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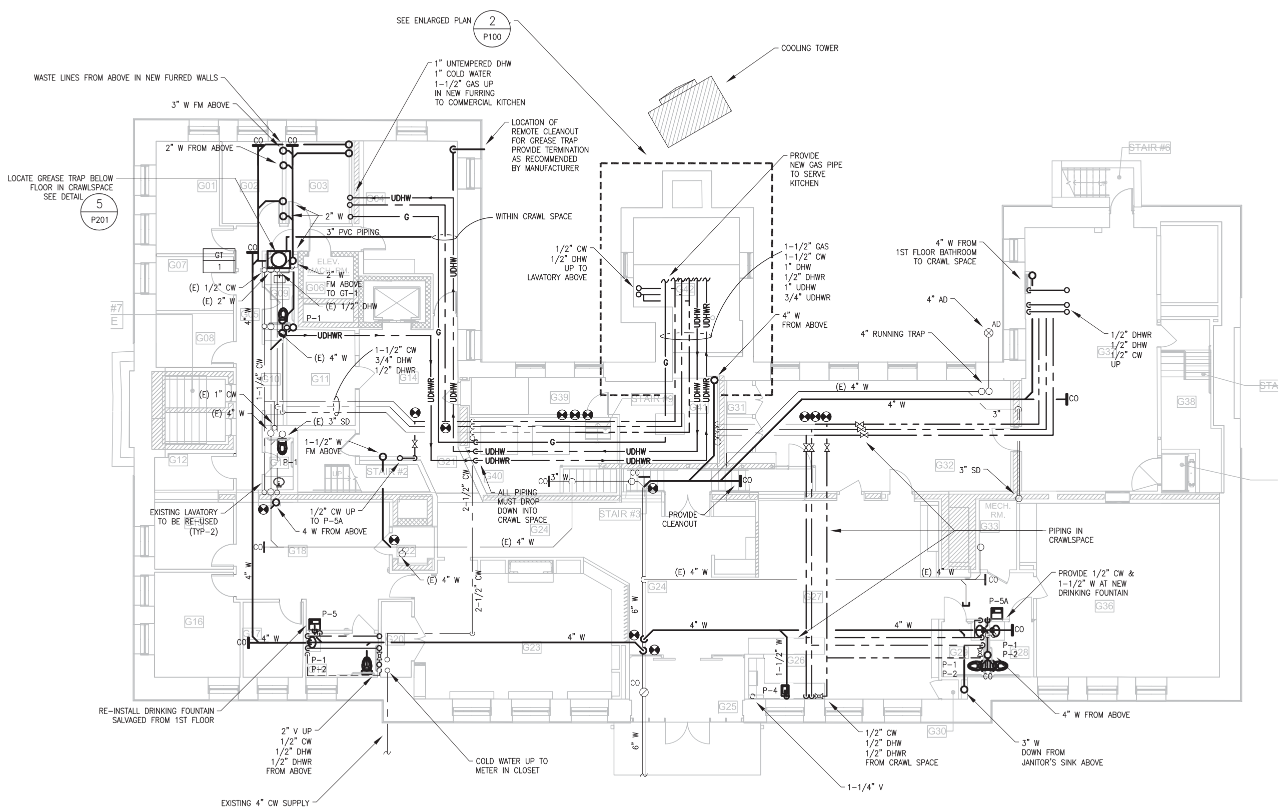
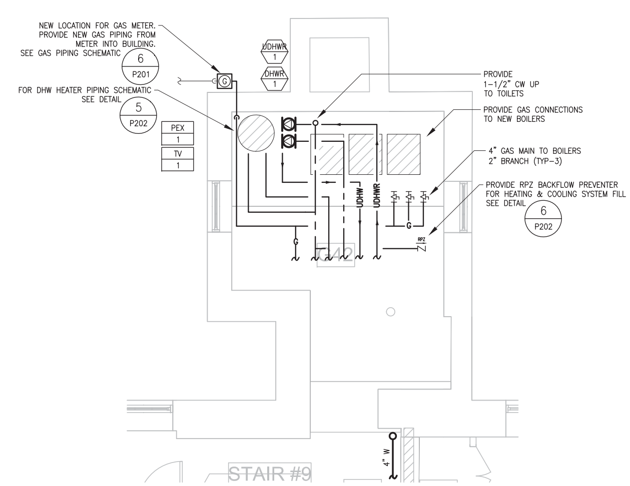
DRAWING SECOND & THIRD FLOOR PLUMBING DEMOLITION PLAN
DRAWING NUMBER PD102



1 P100 GROUND FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"



2 P100 MECHANICAL ROOM PARTIAL PLUMBING PLAN
SCALE: 1/4" = 1'-0"

PLUMBING NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. THIS PROJECT MUST CONFORM TO THE REQUIREMENTS OF THE "STRETCH CODE", 780 CMR 120AA.
4. PC TO PROVIDE COORDINATION DRAWINGS. ALL REQUIRED PENETRATION OF STRUCTURAL FLOOR FRAMING MUST BE IDENTIFIED IN DRAWINGS. NO FIELD MODIFICATIONS OF FLOOR FRAMING IS PERMITTED.
5. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. PC TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
6. PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
7. INSTALL ALL PIPING ON WARM SIDE OF BUILDING INSULATION.
8. INSULATE ALL CW, DHW, DHWR, & STORM DRAIN PIPING.
9. PITCH WASTE AT MINIMUM 1/8" PER FOOT FOR 4" DIAMETER AND LARGER PIPES, 1/4" FOR PIPES LESS THAN 4" IN DIAMETER.
10. PC TO PROVIDE ALL REQUIRED FITTINGS AND CONNECTIONS TO CONNECT WITH SITE CONTRACTOR PROVIDED WASTE, STORM DRAINS, GAS, AND CW SERVICES.
11. ALL WASTE AND VENT PIPING SHALL BE CAST IRON OR COPPER UNLESS OTHERWISE NOTED.
12. PROVIDE 1/2" CLOSED-CELL FOAM SLEEVES FOR ALL PIPE WHICH PENETRATES SLAB-ON-GRADE FLOOR PRIOR TO POURING CONCRETE.
13. PROVIDE LOCAL ISOLATION, STOP VALVE, ETC. FOR DHW AND CW FEEDS TO EACH PLUMBING FIXTURE
14. VENT FIXTURES PER SCHEDULE AND CONNECT TO RISERS & VENT MAINS SHOWN ON PLAN. ALL VENT PIPING NOT SHOWN.
15. GC TO PROVIDE REQUIRED FIRESTOPPING. PC TO PROVIDE GC WITH MARKED UP PLAN SHOWING PENETRATIONS.
16. PC TO SUPPLY ACCESS HATCHES. GC TO INSTALL.
17. GC TO PROVIDE ALL CORING. CONTRACTOR SHALL PROVIDE GC WITH MARKED UP PLAN INDICATING EXACT LOCATION AND SIZE OF PIPE PENETRATIONS THROUGH FLOORS AND INTERIOR AND EXTERIOR WALLS.

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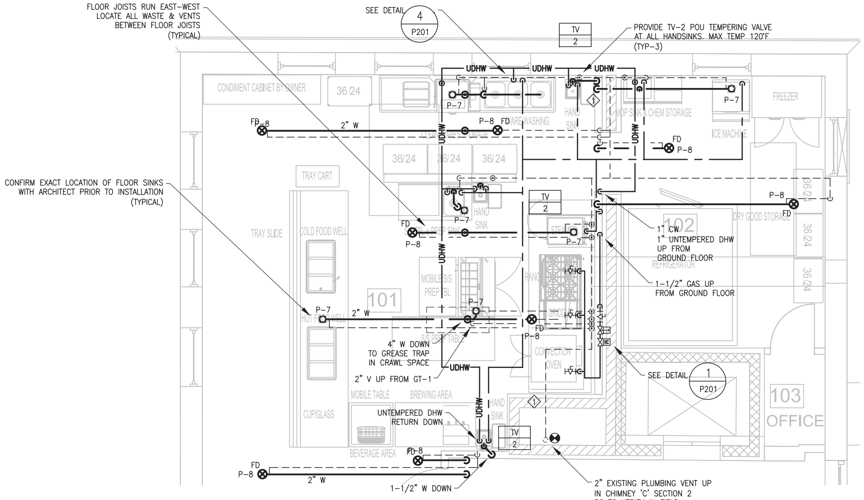
DRAWING GROUND FLOOR PLUMBING PLAN
DRAWING NUMBER P100



2 P101 COMMERCIAL KITCHEN PARTIAL PLUMBING PLAN
SCALE: 1/4" = 1'-0"

COMMERCIAL KITCHEN NOTES:

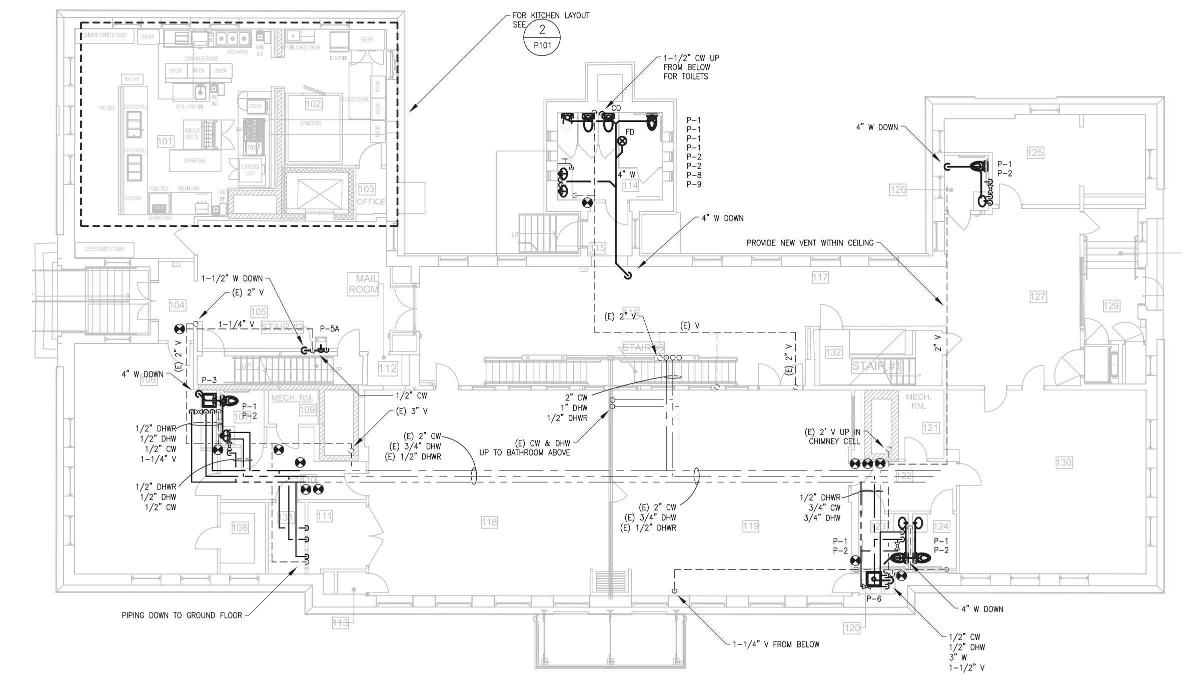
1. SEE ARCHITECTURAL & KITCHEN PLANS BY OTHERS FOR FINAL KITCHEN EQUIPMENT LAYOUT & INFORMATION.
2. KITCHEN EQUIPMENT SHALL BE PROVIDED BY GC. PC TO PROVIDE DHW, DHWR, CW, WASTE, AND VENT FOR ALL FIXTURES SUPPLIED BY GC. PC SHALL PROVIDE FIXTURES AS INDICATED.
3. RUN PIPING CONCEALED WITHIN WALLS WHEREVER POSSIBLE.
4. PROVIDE ESCUTCHEON PLATES AT WALL PENETRATIONS.
5. COORDINATE FINAL FLOOR DRAIN & FLOOR SINK LOCATIONS WITH ARCHITECT.
6. PROVIDE ISOLATION FOR ALL FIXTURE SUPPLIES.
7. PROVIDE TRAP PRIMERS FOR FLOOR DRAINS.
8. PROVIDE INDIRECT WASTE PIPING AS REQUIRED FOR KITCHEN EQUIPMENT & FIXTURES. INDIVIDUAL I.D. WASTE SHALL BE AT LEAST ONE PIPE SIZE LARGER THAN OUTLET.
9. COORDINATE FIXTURE SELECTION AND LAYOUT WITH GC PRIOR TO ROUGH-IN.

PLUMBING NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. THIS PROJECT MUST CONFORM TO THE REQUIREMENTS OF THE "STRETCH CODE", 780 CMR 120AA.
4. PC TO PROVIDE COORDINATION DRAWINGS. ALL REQUIRED PENETRATION OF STRUCTURAL FLOOR FRAMING MUST BE IDENTIFIED IN DRAWINGS. NO FIELD MODIFICATIONS OF FLOOR FRAMING IS PERMITTED.
5. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. PC TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
6. PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
7. INSTALL ALL PIPING ON WARM SIDE OF BUILDING INSULATION.
8. INSULATE ALL CW, DHW, DHWR, & STORM DRAIN PIPING.
9. PITCH WASTE AT MINIMUM 1/8" PER FOOT FOR 4" DIAMETER AND LARGER PIPES, 1/4" FOR PIPES LESS THAN 4" IN DIAMETER.
10. PC TO PROVIDE ALL REQUIRED FITTINGS AND CONNECTIONS TO CONNECT WITH SITE CONTRACTOR PROVIDED WASTE, STORM DRAINS, GAS, AND CW SERVICES.
11. ALL WASTE AND VENT PIPING SHALL BE CAST IRON OR COPPER UNLESS OTHERWISE NOTED.
12. PROVIDE 1/2" CLOSED-CELL FOAM SLEEVES FOR ALL PIPE WHICH PENETRATES SLAB-ON-GRADE FLOOR PRIOR TO POURING CONCRETE.
13. PROVIDE LOCAL ISOLATION, STOP VALVE, ETC. FOR DHW AND CW FEEDS TO EACH PLUMBING FIXTURE
14. VENT FIXTURES PER SCHEDULE AND CONNECT TO RISERS & VENT MAINS SHOWN ON PLAN. ALL VENT PIPING NOT SHOWN.
15. GC TO PROVIDE REQUIRED FIRESTOPPING. PC TO PROVIDE GC WITH MARKED UP PLAN SHOWING PENETRATIONS.
16. PC TO SUPPLY ACCESS HATCHES. GC TO INSTALL.
17. GC TO PROVIDE ALL CORING. PC SHALL PROVIDE GC WITH MARKED UP PLAN INDICATING EXACT LOCATION AND SIZE OF PIPE PENETRATIONS THROUGH FLOORS AND INTERIOR AND EXTERIOR WALLS. REFER TO A602 IN ARCHITECTURAL SET WHEREVER KEYED NOTES ARE SHOWN.

KEYED NOTES:

1. WHERE SHOWN, INDICATES MASONRY WALL MUST BE CORED OR NEW HEADER AND OPENING FRAMED FOR PLUMBING, MECHANICAL, OR OTHER WORK. CORING WORK TO EXECUTED BY GC PER PC, MC, EC, FPC, OR OTHER SUBCONTRACTOR'S MARKED-UP PLAN.



1 P101 FIRST FLOOR FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"

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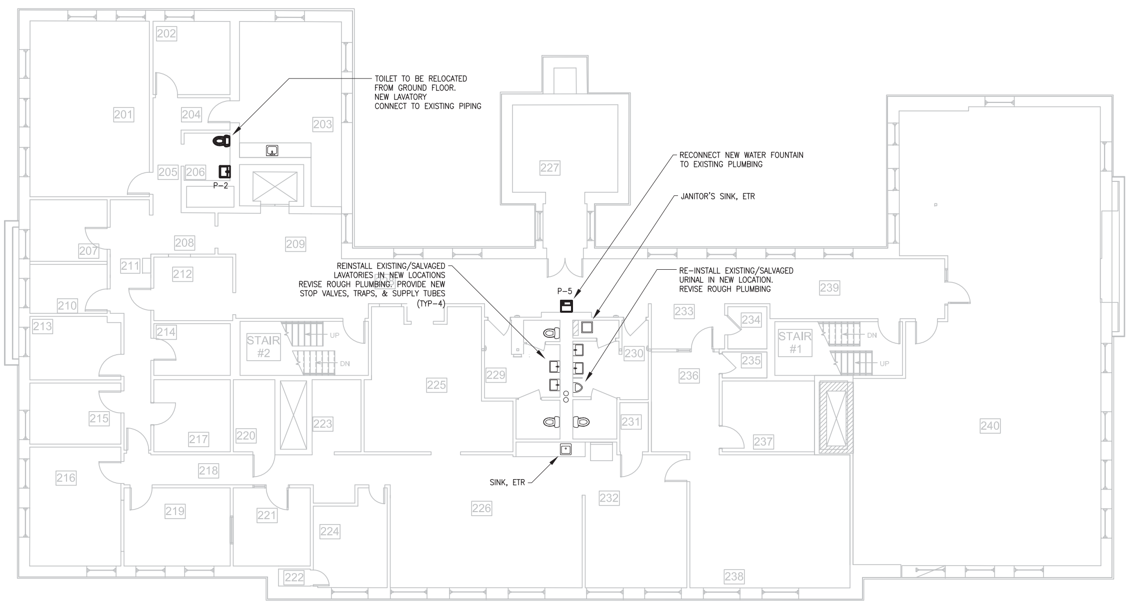
NORIAN / SIANI ENGINEERING, INC

DATE 04/10/2019
NUMBER 1805.00
DRAWN BY RWS
CHECKED BY GAC
PROJECT ARLINGTON CENTRAL SCHOOL RENOVATION

DRAWING FIRST FLOOR PLUMBING PLAN
DRAWING NUMBER P101



1 P102 SECOND FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"

PLUMBING NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. THIS PROJECT MUST CONFORM TO THE REQUIREMENTS OF THE "STRETCH CODE", 780 CMR 120AA.
4. PC TO PROVIDE COORDINATION DRAWINGS. ALL REQUIRED PENETRATION OF STRUCTURAL FLOOR FRAMING MUST BE IDENTIFIED IN DRAWINGS. NO FIELD MODIFICATIONS OF FLOOR FRAMING IS PERMITTED.
5. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE. PC TO INSPECT AND VERIFY ALL INFORMATION IN FIELD AND INFORM THE ENGINEERS OF ANY DISCREPANCIES IN WRITING IMMEDIATELY.
6. PIPING MAY BE SHOWN DISPLACED FOR CLARITY.
7. INSTALL ALL PIPING ON WARM SIDE OF BUILDING INSULATION.
8. INSULATE ALL CW, DHW, DHWR, & STORM DRAIN PIPING.
9. PITCH WASTE AT MINIMUM 1/8" PER FOOT FOR 4" DIAMETER AND LARGER PIPES, 1/4" FOR PIPES LESS THAN 4" IN DIAMETER.
10. PC TO PROVIDE ALL REQUIRED FITTINGS AND CONNECTIONS TO CONNECT WITH SITE CONTRACTOR PROVIDED WASTE, STORM DRAINS, GAS, AND CW SERVICES.
11. ALL WASTE AND VENT PIPING SHALL BE CAST IRON OR COPPER UNLESS OTHERWISE NOTED.
12. PROVIDE 1/2" CLOSED-CELL FOAM SLEEVES FOR ALL PIPE WHICH PENETRATES SLAB-ON-GRADE FLOOR PRIOR TO POURING CONCRETE.
13. PROVIDE LOCAL ISOLATION, STOP VALVE, ETC. FOR DHW AND CW FEEDS TO EACH PLUMBING FIXTURE
14. VENT FIXTURES PER SCHEDULE AND CONNECT TO RISERS & VENT MAINS SHOWN ON PLAN. ALL VENT PIPING NOT SHOWN.
15. GC TO PROVIDE REQUIRED FIRESTOPPING. PC TO PROVIDE GC WITH MARKED UP PLAN SHOWING PENETRATIONS.
16. PC TO SUPPLY ACCESS HATCHES. GC TO INSTALL.
17. GC TO PROVIDE ALL CORING. CONTRACTOR SHALL PROVIDE GC WITH MARKED UP PLAN INDICATING EXACT LOCATION AND SIZE OF PIPE PENETRATIONS THROUGH FLOORS AND INTERIOR AND EXTERIOR WALLS.

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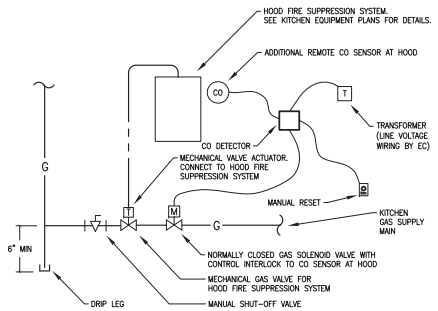
DRAWING
SECOND FLOOR PLUMBING PLAN

DRAWING NUMBER
P102



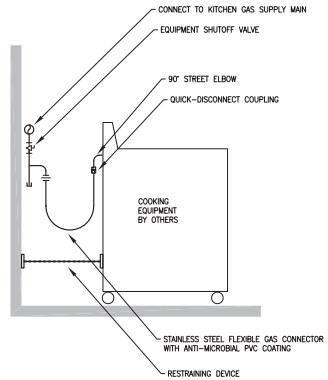
SEQUENCE OF OPERATIONS:

1. STANDARD OPERATIONS:
   GAS SOLENOID VALVE SHALL BE INTERLOCKED TO CO DETECTOR. GAS SHALL NOT BE PROVIDED IF LEVEL EXCEEDS 35ppm OR DETECTOR FAILURE.
2. EMERGENCY FIRE OPERATION:
   ON AN EMERGENCY SIGNAL TO THE HOOD FIRE SUPPRESSION SYSTEM, THE MAU SHALL BE SHUT DOWN. ALL GAS SHALL BE SHUT DOWN VIA MECHANICAL GAS VALVE (AS REQUIRED BY 248 CMR 5.06(9). EXHAUST FAN WILL CONTINUE TO OPERATE.

NOTES:

1. ALL DEVICES AND WIRING TO BE LOW VOLTAGE. ALL LOW VOLTAGE WIRING AND CONTROLS BY PC. LINE VOLTAGE WIRING TO TRANSFORMER BY EC.
2. SEE PLANS FOR PIPE SIZES.
3. INSTALL KITCHEN GAS SUPPLY MAIN 40" TO 48" AFF.

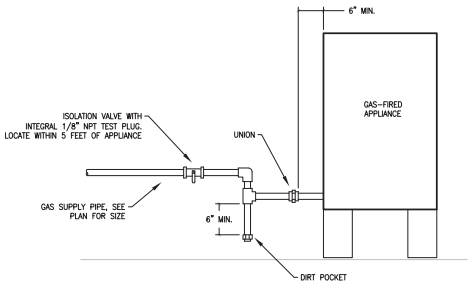
1 P201 KITCHEN GAS PIPING SCHEMATIC
SCALE: N.T.S.



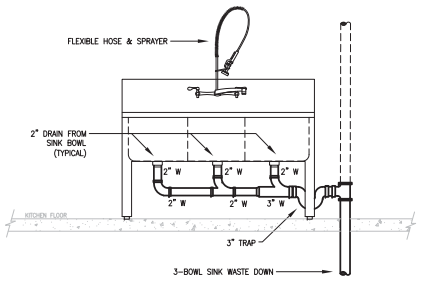
NOTES:

1. PROVIDE 72" CONNECTOR. CONNECTOR SHALL NOT REST ON FLOOR

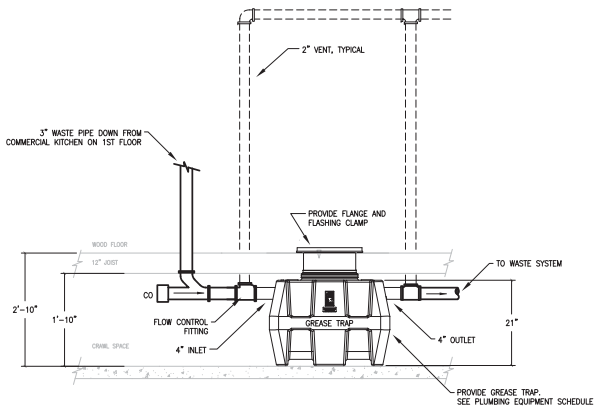
2 P201 COMMERCIAL KITCHEN GAS APPLIANCE EQUIPMENT CONNECTION
SCALE: NTS



3 P201 GAS APPLIANCE CONNECTION DETAIL
SCALE: NTS



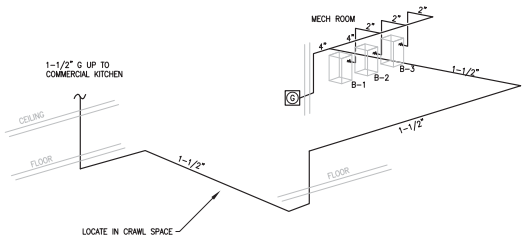
4 P201 THREE-BOWL SINK & DRAINAGE
SCALE: NTS



NOTES:

1. EXCAVATION OF CONCRETE FLOOR BY G.C. TO RECESS GREASE TRAP AS REQUIRED FOR INVERT

5 P201 GREASE TRAP PIPING DETAIL
SCALE: NTS



6 P201 GAS PIPING SCHEMATIC
SCALE: NTS

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DRAWING PLUMBING DETAILS

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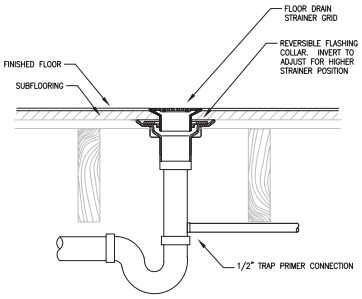
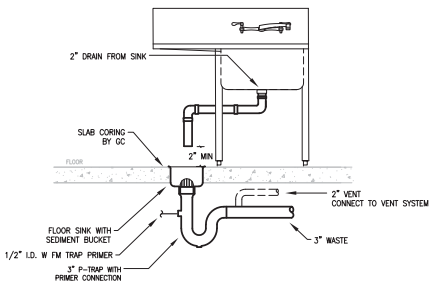


NOTES:

1. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
2. INSTALL EQUIPMENT AND SYSTEMS PER CODE AND PER MANUFACTURER'S INSTRUCTIONS.
3. PIPE MATERIAL PER SPEC
4. COORDINATE FLOOR AND STRAINER HEIGHT WITH GC.

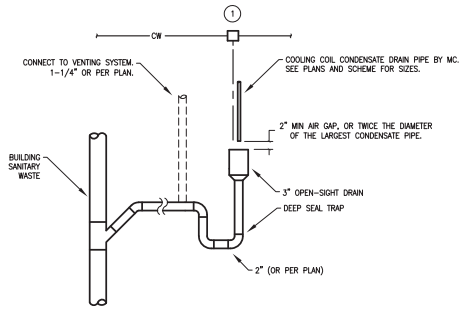
1 P202 FLOOR DRAIN (WOODEN STRUCTURE)
SCALE: NTS



NOTES:

1. CONNECT TO WASTE PIPING IN SLAB

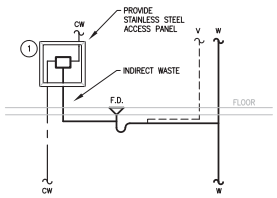
2 P202 SINK DRAIN WITH INDIRECT WASTE
SCALE: NTS



NOTES:

1. AUTOMATIC TRAP PRIMER, LOCATE WHERE ACCESSIBLE PIPE FROM COLD WATER LINE SERVING FREQUENTLY USED SINGLE FIXTURE.

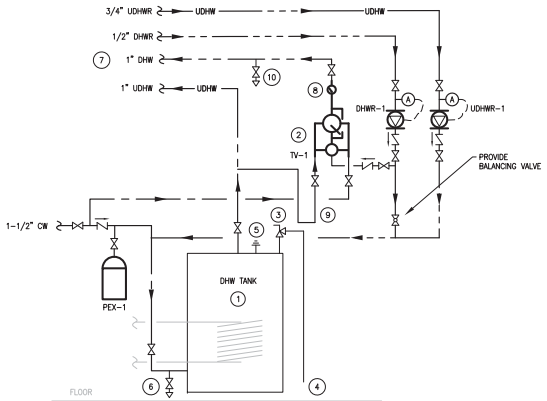
3 P202 INDIRECT WASTE WITH TRAP PRIMER
SCALE: NTS



NOTES:

1. AUTOMATIC TRAP PRIMER. LOCATE WHERE ACCESSIBLE FOR SERVICE. PIPE FROM COLD WATER LINE SERVING FREQUENTLY-USED SINGLE FIXTURE.

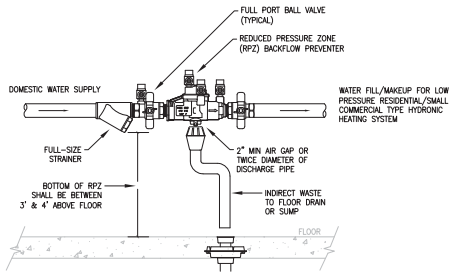
4 P202 TRAP PRIMER DETAIL
SCALE: NTS



NOTES:

1. INDIRECT WATER HEATER BY MC.
2. DHW TEMPERING VALVE, SEE FIXTURE SCHEDULE FOR DETAILS. (PIPING BASED ON LEONARD TM-820B-LF-DT SERIES.)
3. TEMPERATURE & PRESSURE RELIEF VALVE.
4. TERMINATE BETWEEN 6" AND 12" OF FLOOR.
5. VACUUM BREAKER, SIZE PER CODE.
6. 3/4" BALL VALVE, HOSE ADAPTER, CAP & CHAIN.
7. TO FIXTURES SEE PLANS FOR SIZES.
8. PROVIDE THERMOMETER TO INDICATE TEMPERATURE.
9. HEAT TRAP
10. TEST CONNECTION

5 P202 DHW PIPING WITH SOURCE TEMPERING VALVE
SCALE: NTS



ELEVATION

NOTES:

1. INSTALL BFP IN ACCESSIBLE LOCATION FOR TESTING AND SERVICE.
2. BFP TYPE AND MODEL MUST BE APPROVED BY THE BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS.
3. ENSURE HEAT AND LIGHTING ARE ADEQUATE IN AREA OF INSTALLATION.
4. PROVIDE PPE SUPPORTS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. LOCATE BFP 12" MINIMUM FROM WALL.

6 P202 BACK FLOW PREVENTER (RPZ) DETAIL
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